



**Extrusion
Opens New
Products
Market**

**How to
Proportion
Concrete Colors**

July 1958

CONCRETE

For producers of concrete, block, precast and prestressed concrete products and ready mixed concrete

**Tax Savings
on RM Trucks**



LINCOLN TUNNEL . . . THIRD TUBE

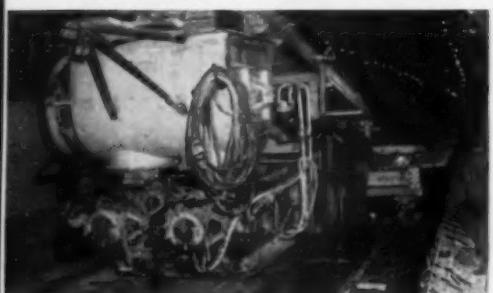
Third tube of Lincoln Tunnel, under the Hudson River. Owner and Engineer: The Port of New York Authority. General Contractor: Joint Venture—Mason, Johnson and MacLean, New York City. Pozzolith Ready-Mix concrete produced by Hudson Builders Material, Inc., Jersey City, N. J.



Ready-mix truck on top side of tunnel discharges concrete into "elephant trunk" . . .



Concrete goes down "elephant trunk" to buggies in tunnel . . .



Concrete pump receives concrete from buggies and pumps it into tunnel lining forms.

"Triple-Play" Concrete ... with POZZOLITH



From ready-mix truck . . . to buggy . . . to concrete pump . . . to tunnel lining—"triple-play" handling while retaining good flowability and minimum bleeding—this was the performance of concrete produced with Pozzolith in the construction of The Port of New York Authority's \$100,000,000 Lincoln Tunnel third tube.

Concrete in the hardened state was also improved—compressive strength tests were above specifications, and appearance is excellent.

These results were obtained with Pozzolith because it produces desired workability with lowest water content, and because Pozzolith is key to the control of entrained air, and control of rate of hardening.

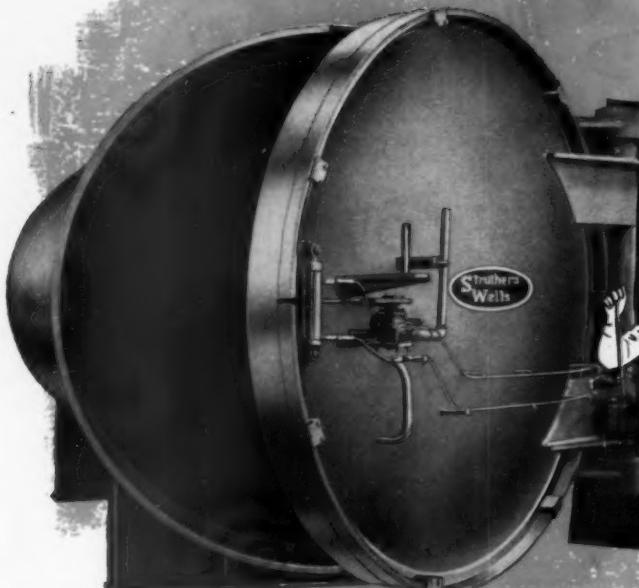
Employed in more than 150,000,000 cubic yards of concrete for structures of all types, Pozzolith aids in producing desired properties most advantageously. We shall welcome an opportunity to discuss and demonstrate the benefits of Pozzolith for your projects.



THE MASTER BUILDERS co.
DIVISION OF AMERICAN-MARIETTA CO.

General Offices: Cleveland 3, Ohio • Toronto 9, Ontario • Export: New York 17, N. Y.
Branch Offices In All Principal Cities • Cable: Mastmethod, N. Y.

Looking for Positive
QUICK OPENING DOORS?

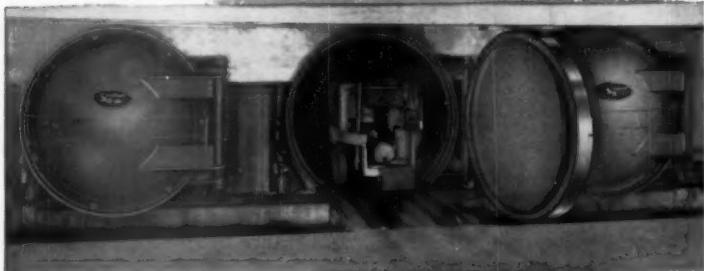


STRUTHERS WELLS

RING-LOK DOORS



Locking ring expands into shell flange forcing door flange into compression with resilient lip gasket for pressure or vacuum seal.



STRUTHERS WELLS PRODUCTS

PROCESSING EQUIPMENT DIVISION

Crystallizers . . . Direct Fired Heaters . . .
Evaporators . . . Heat Exchangers . . . Mixing
and Blending Units . . . Quick Opening
Doors . . . Special Carbon and Alloy Pro-
cessing Vessels . . . Synthesis Converters

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Low Pressure . . . Water Tube . . . Fire
Tube . . . Package Units

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Hydraulic Cylinders . . . Shafing . . .
Straightening and Back-up Rolls

ONE FAST, AUTOMATIC ACTION CLOSES AND LOCKS

Simplicity of operation is one of the outstanding features of Ring-Lok Doors. 45 seconds is all it takes to hydraulically open and close a Ring-Lok up to 12' in diameter. Resilient lip-type gasket is used for positive sealing against pressure or vacuum. Satisfied users report gasket service as high as 600 cycles for this door so ideally suited to the Concrete Block Industry

Struthers Wells Corporation is the sole manufacturer of Ring-Lok Doors which you will find are low in initial cost, low in maintenance cost and unsurpassed in performance. Be sure your autoclave specifications call for Ring-Lok Doors; accept no substitute.

ASK FOR BULLETIN SW-553

STRUTHERS WELLS Corporation

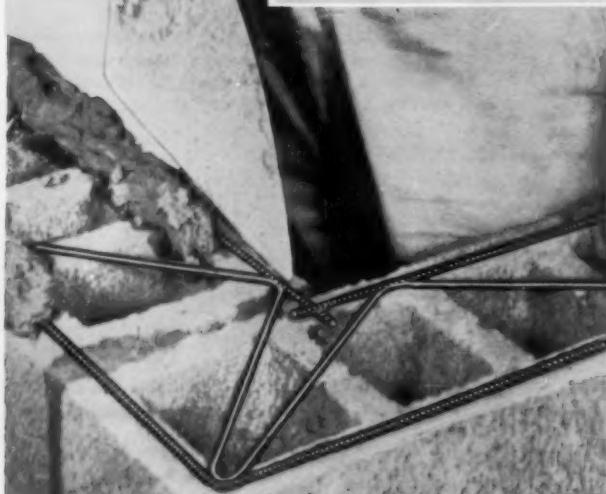
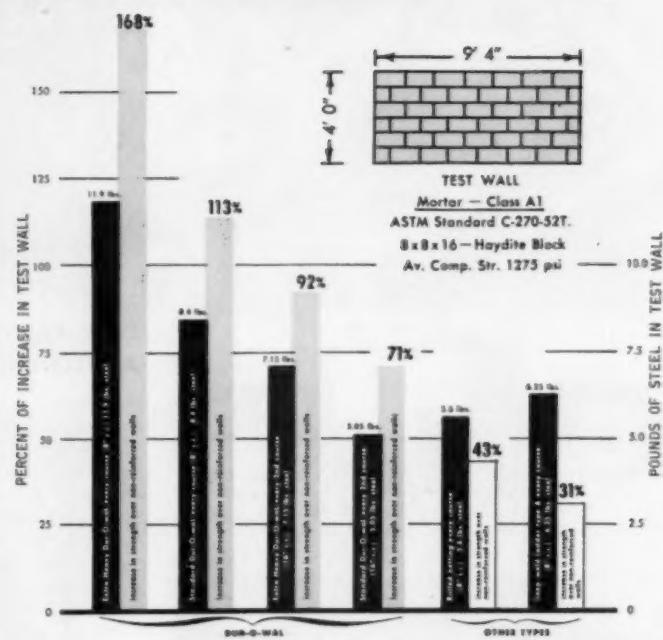
TITUSVILLE, PA.



Plants at Titusville
and Warren, Pa.

Offices in Principal Cities

Test Results Prove that DUR-O-WAL is your Most Economical and Effective Steel Masonry Reinforcement



Tests Conducted by Toledo University Research Foundation

Dur-O-wal with patented trussed design out-performs other reinforcing two to one . . . reduces lineal foot requirements by half . . . cuts building costs. Every pound of high tensile steel in Dur-O-wal works twice as hard because the exclusive trussed design and superior bonding characteristics make every inch work together as a unit. Test results prove why building experts insist on Dur-O-wal . . . the steel masonry reinforcement that exceeds ASTM specifications . . . by far your best and most economical buy.

Research findings available on request.

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Rigid Backbone of Steel For Every Masonry Wall

Dur-O-wal Div., Cedar Rapids Block Co., CEDAR RAPIDS, IA. Dur-O-wal Prod., Inc., Box 628, SYRACUSE, N. Y. Dur-O-wal Div., Frontier Mfg. Co., Box 49 PHOENIX, ARIZ. Dur-O-wal Prod., Inc., 4500 E. Lombard St., BALTIMORE, MD. Dur-O-wal of Ill., 119 N. River St., AURORA, ILL. Dur-O-wal Prod. of Ala., Inc., Box 5446, BIRMINGHAM, ALA. Dur-O-wal of Colorado, 29th and Court St., PUEBLO, COLORADO. Dur-O-wal Inc., 165 Utah Street, TOLEDO, OHIO

JULY 1958

CONCRETE

For producers of concrete block, precast and prestressed concrete products and ready mixed concrete

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FEATURES FOR THIS MONTH

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DEPARTMENTS

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Machine Extrudes Concrete Conduit 28

A new concrete products market: concrete conduit for housing underground telephone cable. The article, by Hubert C. Persons, explains the machine that extrudes the conduit, describes the conduit sections, introduces the machine's inventor, and details the Bell Telephone Co.'s use of multiple duct concrete telephone conduit.

Rock-Face, Supplying the Replacement Market 33

Bersano Block Co., Joliet, Ill., finds a healthy profit in making and delivering rock-face block at 49 cents apiece.

Merchandising a Company and Its Products 34

The last of a three-part series on Standard Block & Supply Co., this article takes up the selling, merchandising, safety and employee-relations concepts of this Lansing, Mich., company.

Tax Exclusions of Truck Mixer Components 37

Here is a table of the ready mixed truck components and the weights of these components that can be excluded in figuring weights for Motor Vehicle Use Tax.

Available Colors and Quantities to Use in Concrete 38

The third article of a continuing series on how to use color in concrete, this part lists available colors, gives the advantages and disadvantages of each, and includes a chart for pigment loadings in concrete mixtures. By Gordon W. Schmidt.

1957's Ready Mixed Totals 42

Here are the results of The National Ready Mixed Concrete Association's annual survey of production during the previous year. By Kenneth E. Tobin, Jr.

No Time to Mark Time! — Editorial 27

Possibly the most important point to come out in the President's recent speech to the American Management Association was that the actions of individual business men determine the strength (or weakness) of the U. S. economy.

Advertising Representatives: Porter Wylie & Co., 114 East 13th St., New York 3, N. Y., Phone: Gramercy 5-3581; Crawford L. Elder, 2500 El Venado Drive, La Puente, Calif., Phone: Oxford 4-4116; Clarence L. Morton, 294 Washington St., Boston 8, Mass., Phone: Liberty 2-8538. Subscription Price: \$6.00 for one year, \$11.00 for two years, postpaid. No subscriptions accepted for longer than two years. Single copies, 50 cents each. Copyright 1958 by Concrete Publishing Corp. Accepted as controlled circulation publication at Mendota, Ill.

BUILD YOUR PROFITS

WITH

Columbia

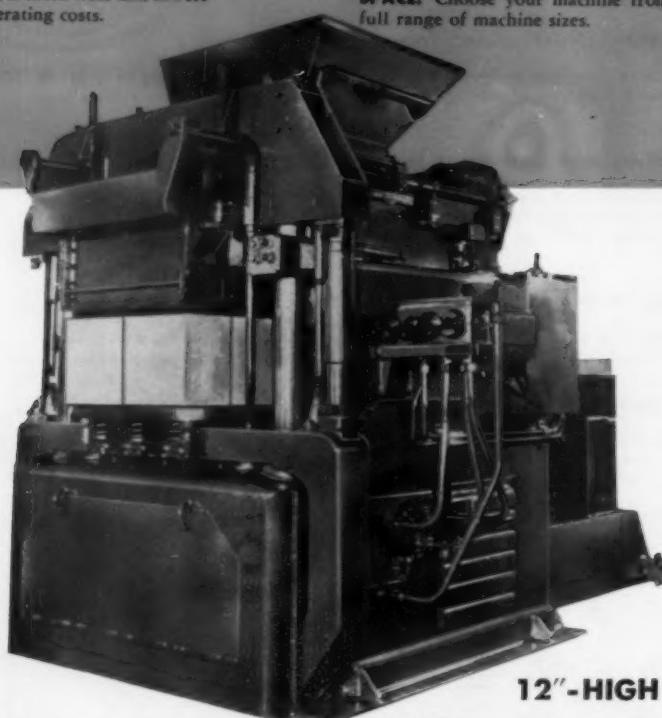
MACHINE'S COMPLETE LINE OF PLANT EQUIPMENT
FOR PRODUCERS OF CONCRETE PRODUCTS

**Columbia Block Machines have the features
that mean LOW-COST OPERATION to you.**

**FULLY AUTOMATIC,
ELECTRONICALLY CONTROLLED,
HYDRAULICALLY POWERED.** Positive hydraulic power in addition to assuring smooth operation, has the advantage of providing various rates of operating speed without time-consuming gear and cam changes. The machines may be switched from one speed to another simply by turning a dial.

STANDARD SIZE, PLAIN PALLETS
are automatically fed.

**COUNTER-BALANCED DIRECT VERTI-
CAL VIBRATION** keeps vibrations in the mold box where you want it and not in the machine... allows perfect compression head alignment which reduces mold wear and lowers operating costs.



12"-HIGH

The revolutionary concrete block machine that made the specialty market practical and profitable. Available in 2½ and 3 block sizes. The COLUMBIA 12-HIGH makes all regular blocks in the 4-inch and 8-inch heights as well as

**ELECTRONIC HEIGHT AND
DENSITY CONTROL
AUTOMATIC FRONT DELIVERY**

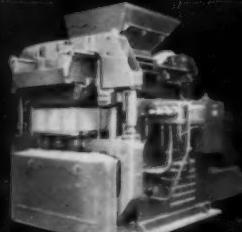
**FRAMES ARE SOLID, HEAVY,
WELDED PLATE**

**ALL WEARING PARTS AND BEARINGS
ARE COVERED TO KEEP OUT
FOREIGN MATTER**

FAST MOLD CHANGES ...only 15 to 20 minutes when continuing to produce blocks of the same height. Slight additional time is necessary when machine is changed to other heights.

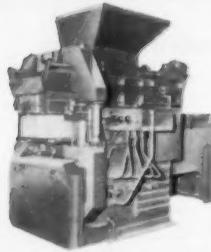
**OCCUPIES A MINIMUM OF PLANT
SPACE.** Choose your machine from a full range of machine sizes.

**MODEL
12**



A fully automatic, 3-block, production giant... will make a wide variety of block sizes including three 8-inch, two 10-inch and one 4-inch; two 12-inch, etc.

**MODEL
10**



A fully automatic, 2½-block machine, very flexible... will produce many combinations of block sizes including two 10-inch, one 12-inch and one 8-inch, etc.

**MODEL
8**



A fully automatic 2-block machine, thrives on hard work... a low-cost profit builder, makes two 8-inch or three 6-inch and dozens of other combinations of popular block and brick sizes.

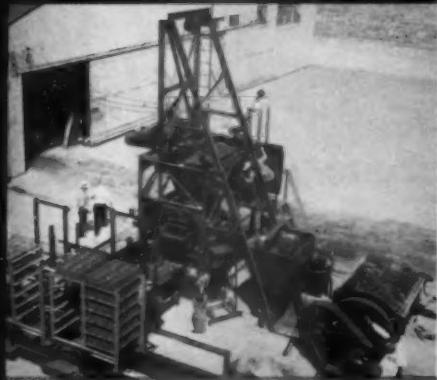
SEMI-AUTOMATIC

A 2-block machine, identical with the Model 8, but without feed box agitator and automatic controls. Can be converted to automatic at any time.



BASIC — the same as the Semi-automatic without the pallet feeder. This low-cost, dependable machine can be your first step in the plain pallet field. Easily converted to automatic.

**IN ADDITION TO
BLOCK MACHINES,
COLUMBIA SUPPLIES
EVERYTHING YOU NEED
FOR A COMPLETE
CONCRETE PRODUCTS
OPERATION**



AUTOMATIC RACK LOADER

AND UNLOADER takes the green block off the machine and places it in the proper tier of the curing rack. At the same time, the machine automatically unloads incoming racks of cured block, removes the block to the cubing conveyor and sends the pallets on through the cleaner and oiler to the block machine. Incoming racks of cured block, the emptied racks, and outgoing racks of green block are automatically moved, as needed, along a transverse conveyor to the proper position for unloading, loading, or transportation to the curing room.

SKIP HOISTS

Standard, self-contained skip hoists supply aggregate for one machine but can be designed by Columbia engineers to handle multiple machines.

MIX MIZER

Provides automatic, electronic control of pre-wetting, final moisture, mixing time, skip hoist operation and batching. Reduces labor, increases production, gives highest quality results. Models for all size plants.

FREE!

Columbia's completely illustrated, colorful new CATALOG, loaded with detailed information will be sent upon request.

Name _____

Address _____

City _____

State _____



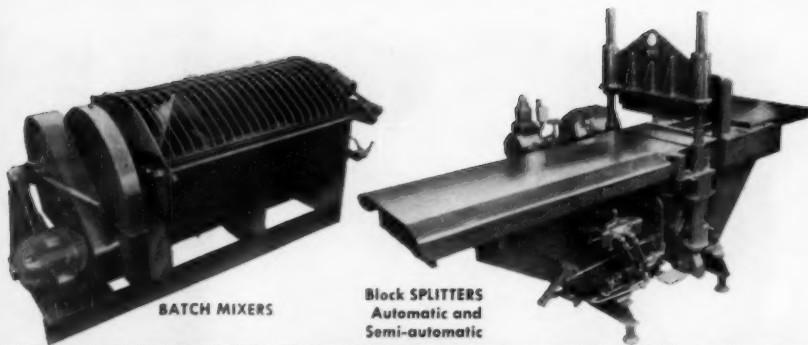
Columbia MACHINE

Home Office: 107 S. Grand, VANCOUVER, WASHINGTON

Factory Branch and Warehouse: MATTOON, ILLINOIS

Parts Depot and Office: BURBANK, CALIFORNIA

MANUFACTURERS AND WORLD WIDE DISTRIBUTORS OF A COMPLETE LINE
OF PLANT EQUIPMENT FOR PRODUCTION OF CONCRETE PRODUCTS



BATCH MIXERS

Columbia Mixers are manufactured in sizes and capacities to meet the industry demand. The following five models are available for immediate shipment:

MODEL 12
12½ cu. ft. capacity

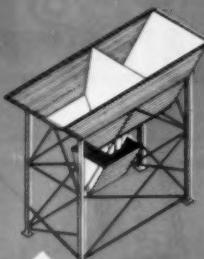
MODEL 25
27 cu. ft. capacity

MODEL 40
42 cu. ft. capacity

MODEL 50*
54 cu. ft. capacity

MODEL 75
81 cu. ft. (3 cubic yards) capacity. Headline 10,000
lbs. of mix at one charge.

*Direct gear-head motor drive available on Model 50 at slight additional charge.



CEMENT SILOS

are available in capacities from 139 bbls. to 673 bbls.

BATCH BINS

Columbia bins are available in 2 sizes: 22 cu. yd., and 55 cu. yd. They are sturdily constructed for long service in permanent or semi-portable installations; can be designed for skip hoist or overhead mixer installations.

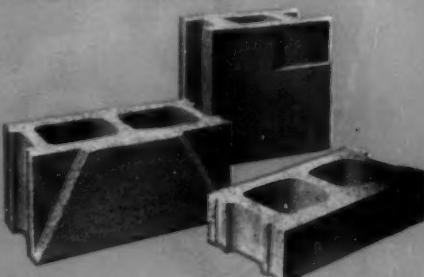


BLOCK SLUMPER

...automatically produces and assures absolute height control of slumped blocks. Rich plastix mix gives variety of face designs with the effect of rough-hewn stone.

BLOCK SPLITTERS

Columbia's fully-automatic block splitter, with dual, opposed splitting blades produces continued output as fast as the operator can load the magazine. Splits either lightweight or regular block up to 8-in. in height by 24-in. in length.



MOLDS

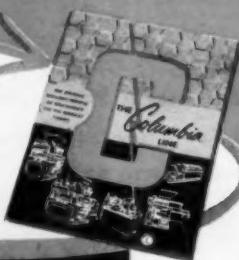
Precision molds for more than 340 block designs available. Each basic mold may produce different types of blocks by simply adding or changing parts. Made of finest steel, case-hardened for long life, production tested at the factory.

C-202 PLASTICIZER contains an extremely high active agent that gives your block a fine, dense finish, lighter more salable color and makes it easier and more profitable for you to manufacture.

PARTS KITS

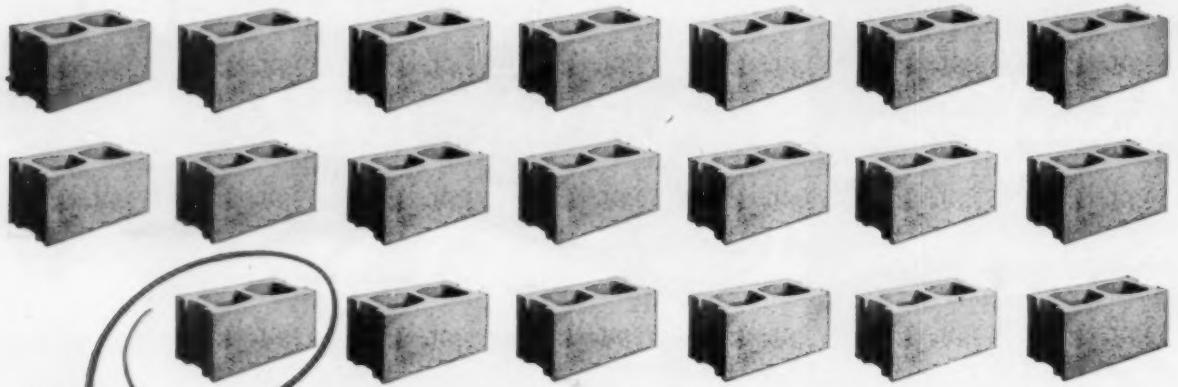
Be prepared for emergencies... Columbia's repair parts kits contain those parts subject to greatest strain and wear... help avoid downtime. REMEMBER, Columbia's emergency parts depots, located in strategic areas, provide fastest service... all parts immediately processed... in most cases 24-hour service is provided.

RACKS, standard and custom built; **ROLL-AWAYS**, power and gravity; **PALLET CLEANERS** and **OILERS**; **CUBING RETURNS**; **MAGNETIC PALLET RETURNS**; **PALLETS**, 1/4 and 5/16-in. steel; **OFFBEARERS**, magnetic, standard 2-pallet, and cubing; **BRUSHES** for **POWER ROLL-AWAYS**.

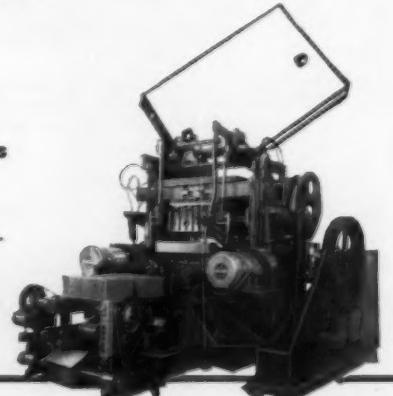
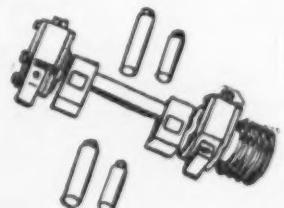
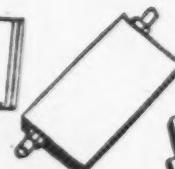
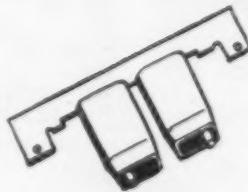
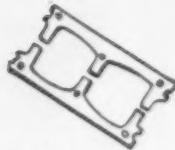


**WITH COLUMBIA
YOU GET A COMPLETE SERVICE...**

Columbia Machine provides a complete engineering service for the planning and designing of mixing plants as well as general layout of the complete block plant.



**One block out of every 20
is wasted when you operate
your VIBRAPAC machine
with Worn Mold Parts!**



Vibrapac blockmakers have learned from experience, it always pays to replace worn parts with Genuine Besser Parts. Take mold parts, for example. Actual figures prove that a concrete block, made with worn cores and division plates, is up to 2 lbs. overweight. Multiply this by the number of block produced each day and the figures become staggering.

Yes, it really pays to use Genuine Besser Parts. *The savings in dollars, on a single day's production, often pays for the parts.* And the extra service you get from Besser is just another reason why it pays to use Genuine Besser Parts.

BESSER Company

DEPT. 127, ALPENA, MICHIGAN, U. S. A.

Complete Equipment for Concrete Block Plants

BESSER PARTS STORES

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DRake 3-5781

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140 Delancy Street
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Mitchell 2-1434

KANSAS CITY

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Victor 2-5261

ALPENA
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LONG OR SHORT HAUL. Barber-Greene Permanent Conveyors are available for every handling requirement. Write for 192-page catalog.

Move material faster - at lowest cost with Barber-Greene Belt Conveyors

Built of standardized components, Barber-Greene Permanent Conveyors are delivered and erected faster. They give top performance, yet require less engineering, and they are easily altered to meet changing or expanding requirements. Standardization also means readily available spare parts.

Barber-Greene Portable Conveyors handle all bulk materials. Pneumatic tires give fast travel between jobs. Swivel wheels allow building of high-capacity radial stockpiles. Line shaft and gear reducer drives eliminate troublesome chains and sprockets. Rugged construction assures long life and low maintenance. Lengths to 60 feet or more. Complete line of accessories.



FASTEAST UNLOADING AND STOCKPILING. Barber-Greene Portable Conveyors and Car Unloaders provide fastest, most economical method of unloading hopper cars to stockpile and trucks.

58-16-POE

Barber-Greene 
AURORA, ILLINOIS, U.S.A.

CONVEYORS... LOADERS... DITCHERS... ASPHALT PAVING EQUIPMENT

JULY, 1958

For more information use postcard facing page 56.

7

COLUMBIA CALCIUM CHLORIDE

keeps you and customers ahead of peak-season schedules

HIGHER EARLY STRENGTHS CUT DAYS OFF JOBS

Contractors need your help when the building season hits its peak. They need your concrete, sure. They need your thinking, too. The kind of thinking that saves them days on time-tight construction schedules. Suggest supplying Columbia Calcium Chloride treated ready mix. Acceptable early strengths are reached *in half the times normally required*. And ultimate strength tests higher. Resistance to surface wear is often doubled. Density is better. Builders can switch forms days earlier, wind up finishing without overtime, complete the job well ahead of date. Are you giving *your* customers Columbia Calcium Chloride thinking? Once they've tried it, they'll be back for more . . . for years.



Add economical, easy handling Columbia Calcium Chloride to ready mix at your plant or at the customer's job site in a few minutes.

BETTER CONCRETE PRODUCTS AT LOWER COSTS

The year's top demand for concrete products output is just ahead. Precast units, panels, block, pipe . . . and when they want it, they want it *now*. Tried Columbia Calcium Chloride yet? You can cut production time, and therefore costs, sharply. Yet you actually get better, more dependable curing at the same time. Add the specified amount of Columbia Calcium Chloride to your next mix. Your pre-steam holding, steaming, and soaking times can all be safely reduced. There'll be less product cracking during early handling. You get higher ultimate strength, can make earlier deliveries and lower your inventory. Columbia Calcium Chloride costs so little more, adds so much to production ease and end quality. Why not check your nearest Columbia-Southern office today?



Roofing tile, like other units, is upgraded by proper use of Columbia Calcium Chloride. Use it with regular, air entrained, or high early cements.

WRITE TODAY FOR MORE INFORMATION...PLEASE MENTION WHETHER INTERESTED IN READY MIX OR CONCRETE PRODUCTS

**COLUMBIA-SOUTHERN
CHEMICAL CORPORATION**

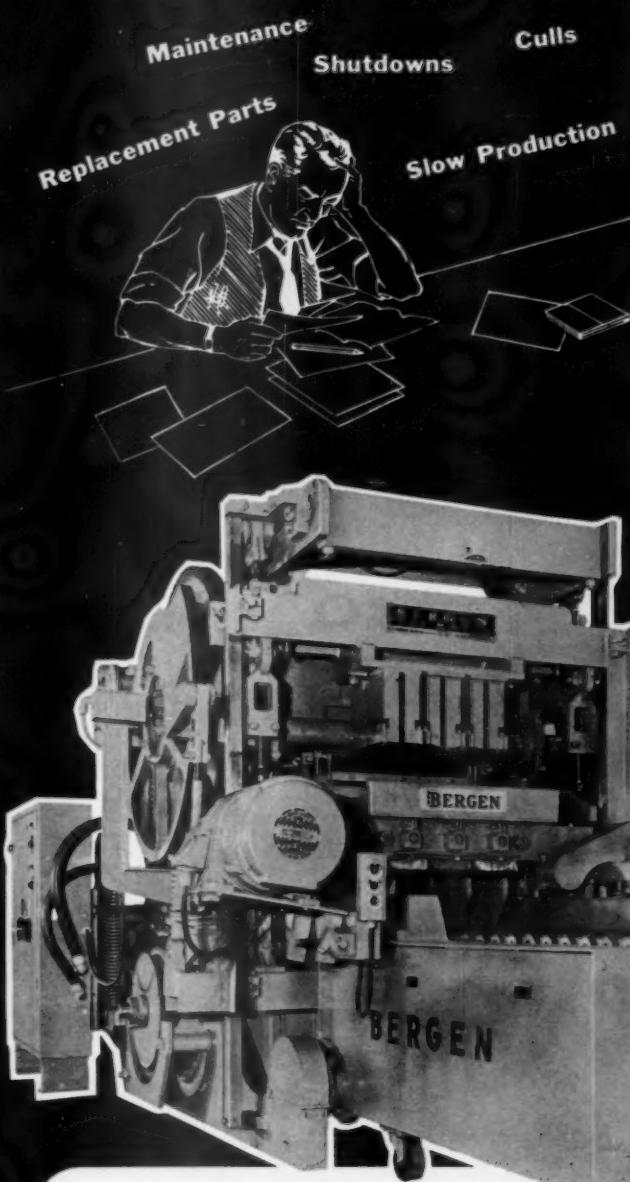
SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY
ONE GATEWAY CENTER • PITTSBURGH 22 • PENNSYLVANIA



DISTRICT OFFICES: Cincinnati • Charlotte • Chicago
Cleveland • Boston • New York • St. Louis • Minneapolis
New Orleans • Dallas • Houston • Pittsburgh
Philadelphia • San Francisco

IN CANADA: Standard Chemical Limited

ARE HIGH COSTS EATING AWAY YOUR PROFITS?



Install a **BERGEN** **TRI-MATIC**

for dependable, high-volume,
low-cost block production

When you buy a Bergen Tri-Matic, you're not spending money . . . you're *making money!* The moment a Tri-Matic begins operating, your production—sales—and profit picture improves.

A Bergen Tri-Matic quickly pays for itself in more blocks per hour, per day—low maintenance—higher quality blocks—more profit per block—bigger, better jobs to quote on and sell.

WRITE for detailed literature explaining why you get more for your money in a Bergen Tri-Matic. Or, have a Bergen engineer call.

CONVENIENT PURCHASE PLANS

1. Cash Payment
2. Time Payments
3. "Lease-with-option-to-buy" contract
(Non-royalty, fixed monthly payment)

A LE SUEUR MOISTURE METER will save your Batch Mixing time, costs, and labor. Write us for literature.

The Bergen TRI-MATIC has ALL these features!

- Unsurpassed High Production—can exceed 6 mold cycles per minute, producing 1000 to 1100 perfect 8" equivalent units average per hour — day after day, year after year.
- Proven Dependability—precision engineering and heavy duty construction assures long, trouble-free economical service.
- Positive Height and Density Control—assures quality blocks under all conditions.
- Automatic Front Pallet Feeder—uses exclusive Harmonic Drive to provide smooth block handling at high machine speeds.
- High-Speed Off-Bearing Hoist—provides easy, effortless block handling; minimizes operator fatigue.
- Torque Arm Reducer Drive—provides smooth, strain-free power drive; reduces wear and maintenance costs.

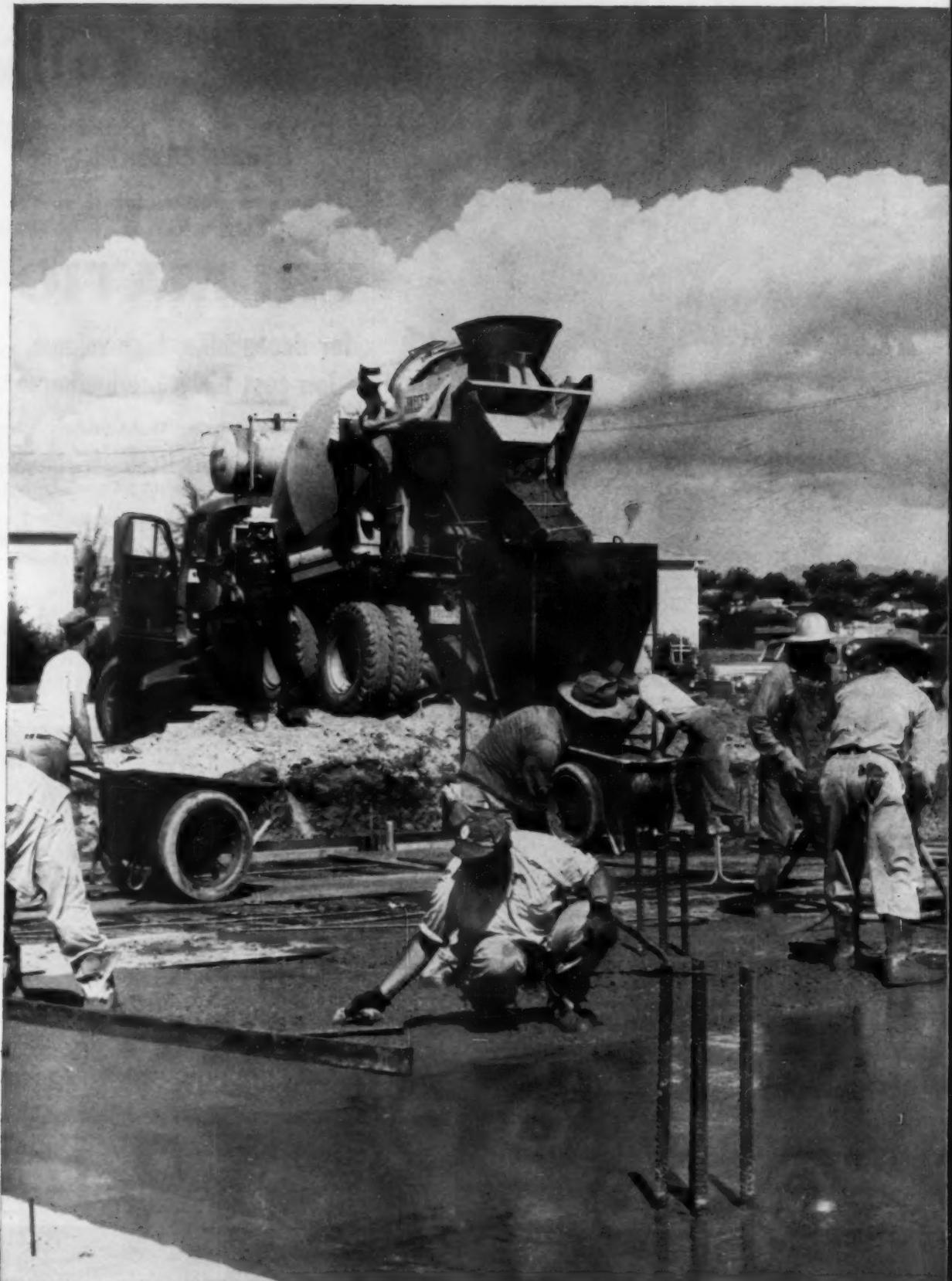
These features, and more, are included in every Bergen TRI-MATIC high-production Block Machine. They can also be applied to your existing equipment.



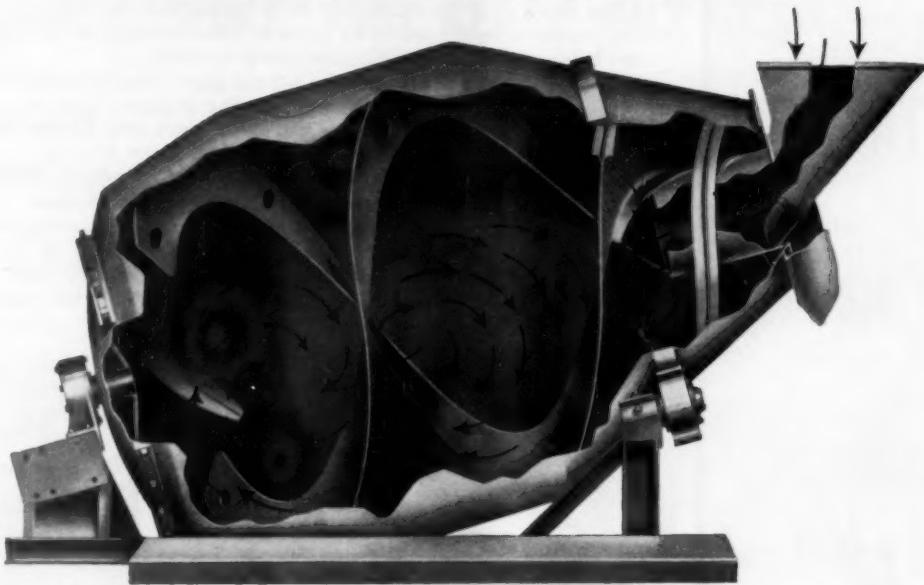
BERGEN MACHINE and TOOL CO., Inc.
NUTLEY, NEW JERSEY

Bergen manufactures a complete line of Block Plant Equipment—Batch Mixers, Skip Hoists, Off-bearing Hoists, Height and Density Control Panels, Mold Repair Tables, and a full line of mold attachments and replacement parts.

Telephone:
Nutley (N.J.) 2-7300
Cable:
"BERGENCO" (Nutley, N.J.)



Why a Jaeger Mixes Better Concrete



- 1: Short drum with correct diameter-to-length ratio.
- 2: Die-shaped continuous spiral mixing blades of 12" minimum depth.
- 3: Exclusive Jaeger "throw back" blades which reverse the mix.

Ever since the famous Hollister tests proved its greater efficiency, the Jaeger truck mixer has adhered to this "Dual Mix" drum. The combination of its three design elements

gives this drum its unequalled end-to-end dual mixing action. It produces higher strength, more uniform and workable concrete, mixes faster and discharges fast and clean.

Jaeger advantages begin with the mix

Now Get These 1958 Features

Latest Improved Discharge Blade Design:

Gives smoothest, most uniform discharge of hard-to-control high slump concrete for discharging into wheelbarrows or thin wall forms. Increases the speed of discharge of stiff mixes, as well.

New, Clash-Proof Transmission Shift:

Famous Jaeger single-stick shift in a radically improved, patented design including synchromesh reversing transmission. Provides a positively-guided shift through disengagement, braking and re-engagement; prevents any gear-clashing, gives you the fastest, easiest shift of any mixer today.

Lighter, more versatile discharge chute,
to 13' length.

Full choice of driving method

— either Continental or Chrysler separate engine or front-of-truck pto.

Did you ever check a job where several makes of truck mixers were working on the same short haul pour? It's astonishing how much less time, compared with others, the Jaeger needs to "make a mix." You see the same big difference when the drums are reversed to discharge. The Jaeger discharges and is away before any of the others — often by several minutes regardless of whether the material is low or high slump.

Helps produce quality concrete at less cost: For nearly 30 years Jaeger has concentrated on giving ready mixed concrete producers a more efficient mixer. Jaeger's 3-speed transmission provides a range of 1½ to 16 rpm drum speeds, at proper engine speeds, for every condition. End-loader hoppers, drum and blades are all designed for the fastest intake and discharge of any mixer built today.

Today's Model "F" Jaeger is lighter, too, mounts to better advantage, costs less than ever to maintain. Let us give you the up-to-date facts. See your Jaeger distributor — or write us for Specification TMS7.

THE JAEGER MACHINE COMPANY

522 Dublin Avenue, Columbus 16, Ohio

Jaeger Machine Company of Canada, Ltd., St. Thomas, Ontario

HIGH PORTABILITY VS. the Capacity of a Permanent Ready Mix Plant ...

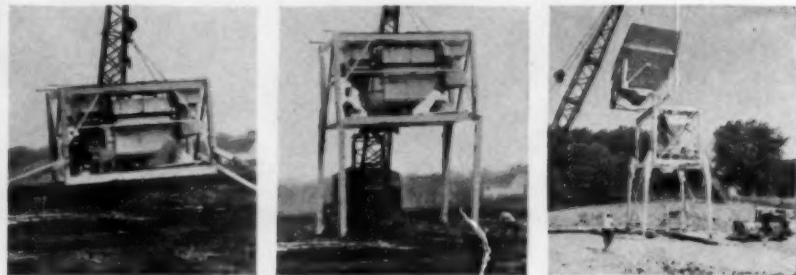
High production need NOT be sacrificed for portability — at least not in the BUTLER HP-85 Ready Mix Plant — (although it is probably unique in this all-important advantage).

The capacity of the Butler HP-85 is limited *only* by the time you require to spot your truck mixers. Theoretically, the HP-85 can batch at the rate of 200-plus yards an hour!

As to portability — the pictures tell the story. The compartmented bin section ships in one piece with bracing in-place, rests on the batcher section. The batcher section is a unit with all bracing, piping and wiring installed. Support columns are hinged to the batcher bracing, swing into place as the batcher section is raised.

Reserve cement bin ships in one piece with legs attached. And a Service Entrance Panel equipped with quick connectors leads from the power source to all controls.

Ship the HP-85 by low bed trailers or flat car — 30, 100, 200, 300 or more miles to a job site. You're in business the day after the Plant arrives.



Crane raises complete batcher section

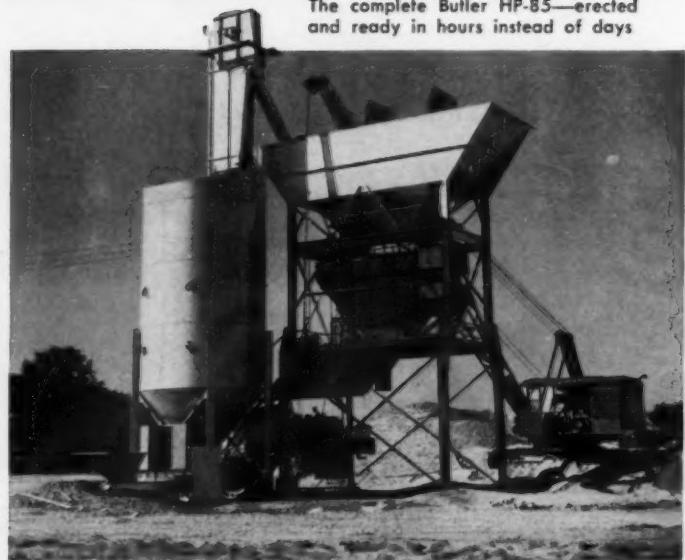
Hinged support columns swing into place

Crane quickly positions one piece bin on top of batchers

... why not have both IN ONE?

THE
BUTLER
HP-85

The complete Butler HP-85—erected and ready in hours instead of days



BUTLER BIN COMPANY

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FOR BLOCK AND READY MIX PLANTS

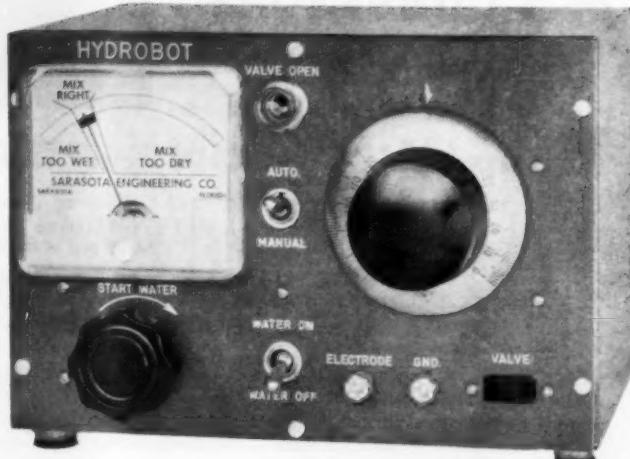
**FOR UNIFORM
BLOCK PRODUCTION**

HYDROBOT

HYDROBOT is an electronic instrument to automatically shut off the mix water when the mix is the proper consistency.

ACCURATE — Will duplicate batches with far greater precision than human judgement.

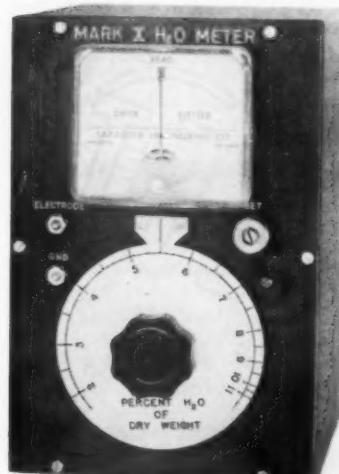
SIMPLE — Installed by your own maintenance man. Single dial adjustment. Allows easy setting for any moisture requirement.



\$278.00

**DELIVERED
LESS 2%, 10 DAYS**

**FOR UNIFORM
READY MIX
PRODUCTION**



**\$178.00
DELIVERED**

LESS 2%, 10 DAYS

MARK X, H₂O METER

The MARK X is an electronic instrument to determine the moisture in fine aggregates, such as sand, screenings, etc.

ENGINEERED — to be the most reliable and accurate instrument produced for the purpose at any price.

POPULAR — Most widely used Moisture Meter ever marketed — THE STANDARD OF THE READY MIX INDUSTRY.

Automatic MEMORY — The batcher can see at a glance what his previous moisture has been and whether or not it has changed since the last batch.

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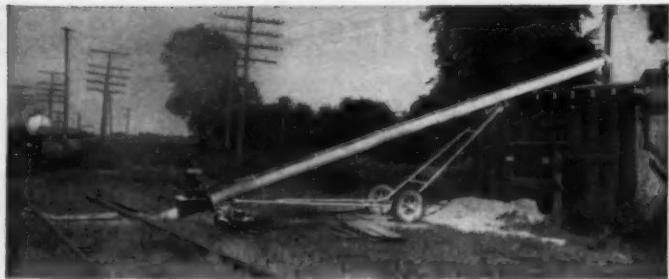
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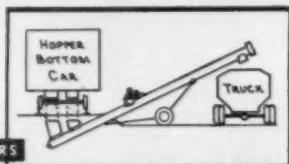
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DOES the WORK of 2 CONVEYORS

from rail car to truck,
bin or stockpile ...



up to 60 TONS PER HOUR



(4"x20") on the Q-51C connect with discharge hoppers of car with canvas connectors. This is a single unit with a single power source (gas or electric).

On most sidings the versatile, portable Q-51C eliminates the need for an under-track conveyor; saves the cost of a second power unit.

NOTE: Adaptors for boxcar unloading available on special order.

200
SERVICE BRANCHES
IN U.S. and CANADA



Heavy 9" screw actually pumps grain, cement, stoker coal, chemicals, fertilizer; no roll back. 35' to 50'. Raise or lower by hand crank. Cut time and cost of material handling with Baughman Q-51C.

Baughman is also the world's largest manufacturer of automatic self-unloading truck bodies.

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There are dozens of places around the town or farm home where Trinity White portland cement is much more effective. Use it. Trinity White is much better in appearance than standard grey for walks, pools, drive-ways, etc. You will find the added cost is unimportant in comparison with the better appearance of the improvements.

A product of GENERAL PORTLAND CEMENT CO.
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As white as snow



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Whitest in the bag
Whitest in the mix
Whitest in the completed job

FROM THE NEWS DESK

Say Construction Will Prop Sagging Economy

The construction industry again is fulfilling its historic role of bolstering a sagging economy and leading the way out of a recession. That is indicated by replies in a telegraphic survey of construction activity and prospects conducted among the 125 chapters of Associated General Contractors of America in all parts of the country.

The preponderance of the replies indicated: Current construction activity is normal or above normal for this season of the year in most areas of the country; Construction prospects for the remainder of 1958 are considered better than normal in a majority of areas, and at least normal in most others; The federal-aid highway program is on schedule or ahead of schedule in most areas; The recession has had little or no effect on construction activity in most instances; The recession has leveled off in most areas and lessened in many; Competition among general contractors continues to be very keen and is greater now than a year ago.

The survey was conducted by the AGC in connection with the dedication of the association's new National Headquarters Building at 20th and E Streets, N.W., Washington, D.C., which took place June 10 with Vice President Richard M. Nixon making the dedicatory remarks at ceremonies attended by many government officials and leaders in the construction industry.

Replies to the questionnaire were received from 98 of the 125 AGC chapters, or almost 80 per cent. This is the third time since the end of World War II, the AGC said, that the construction industry, through increasing its own volume of activity, has provided a bulwark for a faltering national economy and has led the way out of a recession. The previous instances were in the recessions of 1949 and 1954. Since the construction industry is the nation's largest production activity, accounting for more than one-seventh of the gross national product and a similar proportion of total employment, directly and indirectly, its operations are of

great importance to producers of materials, equipment and supplies, to transportation, and to the nation's labor force.

Building Cost Index Up But Cement Prices Weak

Weakening cement prices in some parts of the country provide the only offsets to upward pressure on building costs from higher wage rates and scattered lumber price rises according to Engineering News-Record and Construction Daily reports. These reports say that large wage increases in many cities raise June construction and building costs to record highs as measured by 20-cities construction cost and building cost indexes.

The ENR-CD Construction Cost Index for June stands at a new high of 757.31, 0.8 per cent higher than the May value of 751.57 and 5 per cent over a year ago. The June Building Cost Index, also at a record level, is 521.09, up 2.47 points or 0.5 per cent over the May reading of 518.62 and 3.4 per cent higher than last year's value. Both Indexes are based on 1913 = 100.



• Jack Crabbs (left), secretary-treasurer of the National Concrete Masonry Association, presents Luke Altfilisch, president of the Iowa Concrete Masonry Association, with a charter designating the affiliation of both the state and national groups. Ceremony took place May 14 in Ames.

Most of the June wage hikes are for skilled labor. The biggest boost reported is for New York City bricklayers, receiving a 55-cent-plus package deal over the next two years. The new contract provides for a 20-cent hike June 1, 1958, and deferred increases of 20 cents on January 1, 1959, 15 cents on June 1, 1959, and an additional 1% for the pension fund on January 1, 1959.

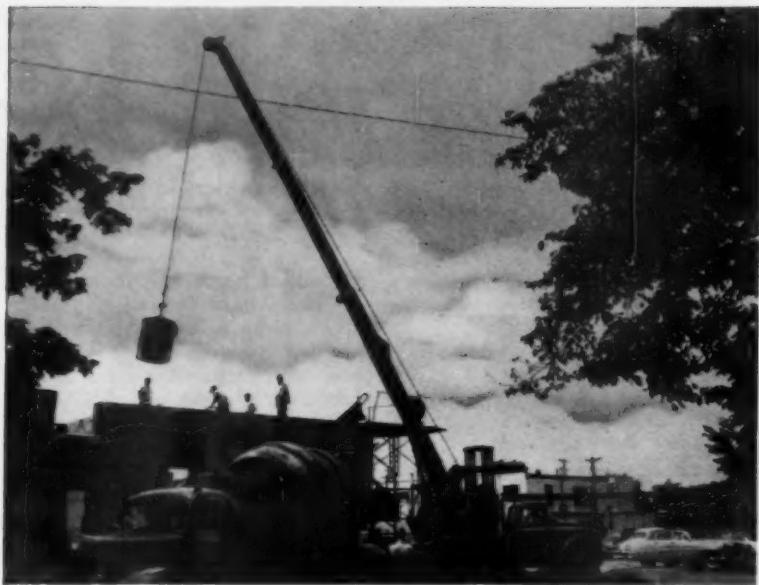
Portland cement prices in a few cities are weakening as dealers pass along freight reductions to contractors. The price of bulk cement per barrel is down 5 cents in Seattle, 25 cents in Baltimore, 15 cents in Boston and 16 cents in New York. One of the 20 cities, New Orleans, ups cement 15 cents per bbl.

Former Concrete Editor Stineman Dies in Oregon

Norman M. Stineman, structural engineer and veteran of three wars who was editor of CONCRETE from 1930 to 1943, died May 10, in Portland, Ore. His death followed a stroke. Before he became editor of CONCRETE he was for several years a member of the staff of the Structural Bureau of the Portland Cement Association in Chicago. In 1954 he retired as a structural engineer with the Cook County Highway department and left Chicago to be near a son and daughter in Oregon.

At the time of his death Mr. Stineman held the rank of Major in the inactive reserve of the U.S. Army Corps of Engineers. He had served in the Mexican border campaign of 1916, was overseas for 14 months during World War I and was with the Far Eastern Command during World War II.

Mr. Stineman was a member of the Society of American Military Engineers and an associate member of American Society of Civil Engineers and the Western Society of Engineers. He was also a trustee of Ohio Northern University.



Using the high-lift, 3-piece boom, this H-5 handles a concrete bucket for a school building under construction in Dayton, Ohio

To give you a money-makin' edge . . .

HYDROCRANE HUSTLE SQUEEZES IN MORE WORK TIME, MORE JOBS

Up to 50 mph on the open road — quick as a commercial truck in traffic — faster than the big delivery trucks hauling precast beams and slabs. That's why fast-stepping H-5 Hydrocranes can get in more jobs per day, bring outlying areas into your profit range — give you a money-makin' edge on competition.

Once at the job site, four hydraulic outriggers set in seconds, form a solid work base. Job done, it takes only a few minutes to pull in the telescoping boom, lift the outriggers and get going to the next job.

Your Bucyrus-Erie distributor is ready to show you this money-makin' hustle in the 12-ton H-5 . . . and 5-ton H-3 Hydrocranes.

272H58

Other Hydrocrane money-makin' edges

- telescoping boom reaches in and out, over and under
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- low-cost new or used standard commercial motor truck mount

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A Familiar Sign at Scenes of Progress

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N.Y. Block Men Visit Anchor Concrete Plant

Highlights of the mid-year meeting of the New York State Concrete Masonry Association, held in Buffalo, N.Y., on May 23, was a visit to the plant of Anchor Concrete Products, Inc., to view the company's new testing and research laboratory, and inspect four autoclaves. Among the group shown here watching Richard J. Frazier, Anchor vice-president-director of production, conduct a test are: Frederick W. Reinhold, Anchor president and host for the visit; Walter W. Underwood, executive director, National Concrete Masonry Association; Henry C. Quaritius, Jr., president, Nailable Cinder Block Co., Brooklyn, and an NCMA director; Salvatore J. Picone, president, Picone Bros., Brooklyn; and Robert Abbey, executive secretary, New York State Concrete Masonry Association.

Sixty attended the all-day meeting to set an attendance record for a semi-annual meeting. At the afternoon session, Alden C. McGuire, Comac Builders Supply Corp., Rochester, chairman of the association's scholarship committee, reported on the high praise won from the New York State Association of Architects for the scholarship fund instituted last year by the Concrete Masonry Association. The New York State group last year presented the Architects' with \$1,000 for the scholarship fund for students of architecture in New York State schools. The Association voted to give another \$1,000 this year.



Mr. Underwood addressed the group on NCMA affiliation. Mr. Reinhold and Mr. Quaritius reported on the Association's activities in regard to State Specifications. A minute of silence was observed in memory of the late John D. Daly of Auburn, an active member of the New York Association and NCMA.

Following the business meeting, the group drove to Niagara Falls, Ontario, to be guests of John and Prima Pennachetti (Thorold Concrete

Block Co. Ltd.) at their all-masonry Fallsway Hotel for cocktails.

Lawrence Dagostino, Dagostino Building Blocks, Schenectady, president of the Association, presided at the meeting.

Detroit Contractors Now Have Masonry Institute

A Masonry Institute to provide information on all phases of masonry construction to architects, builders and the general public has been established by the Detroit Mason Contractors' Association. Co-chairmen of the new Institute are James R. Snyder, president of the Detroit Mason Contractors' Association, and Robert M. Bonus, president of Hay-Con Tile Co. In addition to mason contractors, suppliers of brick, block, stone, tile, mortar and other masonry supplies and equipment are represented in the Institute.

Activities in which the Institute will engage include: Developing standard specifications and average cost indexes for masonry construction; Developing a code of good practice in masonry construction offering seal of approval; maintaining a masonry idea file for architects and builders and an information service to provide data on new masonry materials, new applications and new techniques; offering a technical advisory service on architectural detailing of masonry construction and modular coordination; operation of a speaker's bureau to present technical panels at architects' meetings and similar gatherings; Publication of case histories of outstanding designs in masonry or interesting uses of masonry; Contests to encourage outstanding design and craftsmanship in masonry.

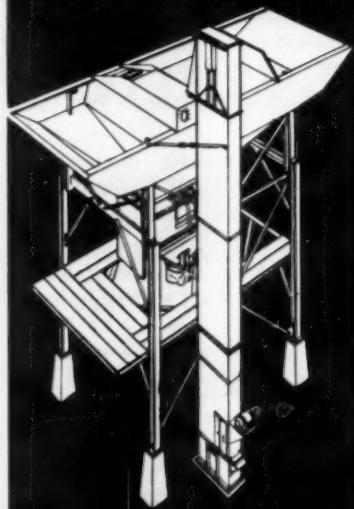
Activities of the Masonry Institute will be directed by four standing committees. The committees and their co-chairmen are:

Technical Problems and Research: Jack F. Powell, Peerless Cement Co. and Louis Tallerico, Charles Barkowski Co.; Job Survey: Donald M. Forrest, Frederic B. Stevens Co. and Raymond Kanfer, Kanfer Construction Co.; Project: John Knecht, Horn Fuel & Supply Co. and Leo J. Vandervennet, Leo Vandervennet & Sons; Program: Don A. Evans, Standard Building Products Co. and Joseph Forte, G. Forte and Co. Saul



NEW Johnson ECONOPLANT®

with cement weighed
on a separate scale



All-welded Johnson bin,
tot. capacity 55 cu. yds.

3 aggregate compartments,
45 cu. yds. total agg. cap.

70-barrel cement tank
with aeration system

180-barrel-per-hour
cement bucket-elevator

Elevator boot-hopper
for bulk or bag cement

3 cubic-yard Concentric
batcher, manual control

Separate cement scale
meets rigid specs.

IT'S YOURS FOR APPROX.

\$10,000 F. O. B. FACTORY

For a minimum investment, you can own this Johnson transit-mix Econoplant (as shown at left) with Concentric aggregate-cement batcher. It complies with the most rigid concrete specifications because cement is weighed on an individual scale — separate from aggregates. Econoplant is ideal for clamshell charging, has large aggregate bin openings. Charging height is only 30½ feet. Optional equipment, available at extra cost: belt conveyor or bucket elevator for aggregates; cement silo; undertrack screw conveyor; bin signals; water meter; weather-proof electric control panel for plant motors (a package unit requiring only simple field wiring). See Johnson distributor or write.

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Send us literature on low-cost Econoplant.

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Faster
production

Higher
quality blocks

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Longer
life construction

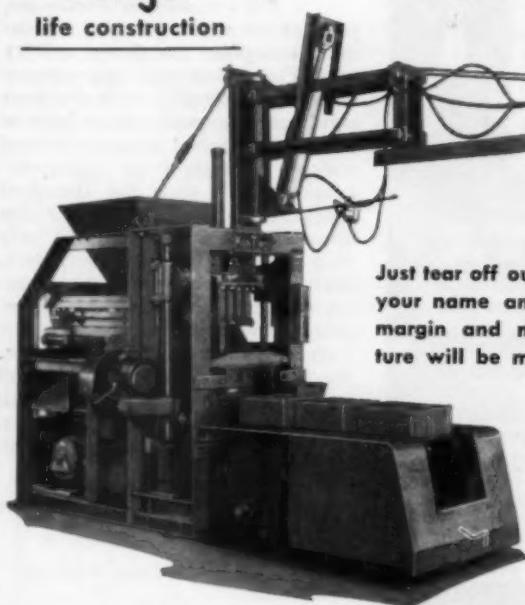
- The KENTWIN Plain Pallet machine produces 2 blocks or equivalent per cycle at prices that meet competition and yield a good profit.

It is scientifically designed and ruggedly built to give top performance for many years with low costs for labor, power, and maintenance.

Electric, hydraulic and mechanical automation units combine to give efficient performance and low cost of operation.

The KENTWIN has no large cams, gears, levers, etc. Lessening of friction through absence of these parts and lessened liability of breakdowns lowers the cost of power and upkeep.

Dependable, rapid, automatic operation minimizes labor cost. Once started by pushing a button the KENTWIN runs automatically. The only labor required is that of the offbearer. And his work is simplified by the front pallet return.



Just tear off our signature—sign your name and address in the margin and mail to us. Literature will be mailed promptly.

The KENT MACHINE COMPANY
CUYAHOGA FALLS, OHIO

SUBSIDIARY OF THE LAMSON & SESSIONS COMPANY

Canadian Distributor: Wettlaufer Equipment, Ltd., 49 Merton St., Toronto 12, Ontario

Shieffman & Associates has been retained as public relations counsel.

"The Masonry Institute was established to serve architects and the general public with information which will contribute to apt and imaginative building applications," according to co-chairmen Snyder and Bonus.

"Continuous research and technical improvement," they add, "keep masonry one of the most modern and most versatile of building materials."

ARBA Conducts Road Contractors' Survey

The American Road Builders' Association is conducting a comprehensive national survey to obtain basic data in support of its current program for the improvement of highway construction practices and procedures. Preliminary samplings have indicated the need for modernizing existing procedures in order to obtain maximum efficiency and economy in carrying forward the accelerated national highway program.

The results of the survey will be used for a three-pronged approach to the problem: (1) Congressional testimony; (2) presentation to the U. S. Bureau of Public Roads; (3) report to the American Association of State Highway Officials.

The survey is an outgrowth of ARBA's continuing Task Force studies on problems affecting the highway contracting industry. During the past year ARBA staff representatives and its Subcommittee on Specifications and Development have held a series of conferences with engineers of the Division of Development of the U. S. Bureau of Public Roads with specific reference to improvement of construction practices and procedures.

At a recent meeting of the board of directors of the Contractors Division, ARBA, H. A. Radzikowski, Chief of the Division of Development, BPR, described some of the work of his division and asked for contractors' advice. Since ARBA has also had requests for contractors' advice from other Government agencies as well as Congressional sources, the contractors' board approved the preliminary work of the fact-finding subcommittee and asked it to obtain as broad a basis as possible the position of the highway contracting industry on specific questions relating to construction practices and procedures.

NCMA's E. R. Mangotich Joins Arizona Precast



E. R. Mangotich

Edward R. Mangotich, until June 1 of this year design engineer for the National Concrete Masonry Association, has been appointed chief engineer for the Arizona Precast Concrete Co. The company has plants in both Phoenix and Mesa, Ariz.

Mr. Mangotich, who received a degree in civil engineering from Marquette University in 1950, joined NCMA in 1952 as assistant engineer. He was promoted to design engineer in the summer of 1957.

While with NCMA, Mr. Mangotich was responsible for the preparation of many of the association's pieces of technical literature, several of which have won awards. He also assisted in conducting research projects and helped association members solve production problems at their plants.

On a number of occasions Mr. Mangotich spoke at state and area association meetings, as well as presenting technical reports to the national convention.

Prior to moving to Arizona, Mr. Mangotich lived with his wife and children in Wheaton, Ill.

Don J. Rapley Joins Stearns Sales Staff



D. J. Rapley

Stearns Manufacturing Co., Inc., Adrian, Mich., has announced the recent appointment of Don J. Rapley as a member of their sales staff. Mr. Rapley will represent the Stearns line of automatic block-producing machinery and allied equipment in Indiana, Central and Southern Illinois, Western Kentucky, Northeastern Missouri and Southeastern Iowa. He will maintain headquarters at Grand Beach, New Buffalo, Mich.

PRODUCE 37 DIFFERENT CASTINGS FROM JUST 1 DOUBLE T STEEL FORM



From forming to final assembly FORM-CRETE units are precision manufactured. During assembly special engineered jigs hold parts in true, straight alignment. Finished forms are inspected, checked and then carefully packed for fast delivery to your plant.

Most versatile and advanced contribution ever developed in the techniques of mass producing prestressed and reinforced concrete! This Double T FORM-CRETE form assembly offers the concrete manufacturer a great opportunity to expand and diversify at minimum initial cost—with a maximum selection of products to cast! Roof slabs, channels, bleacher seats . . . double T joists . . . single T joists with assorted combinations of ends, offsets, and cantilever overhangs—plus many other shapes—are available by utilizing a variety of grout forms and stem heights. An ingenious manufacturer can easily surpass the 37 individual castings we have conservatively estimated available from this one all-steel Double T FORM-CRETE form.



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American Engineers See Russian Concrete Work

A delegation of six American engineers recently completed a ten-day visit to the Soviet Union to inspect progress in reinforced and prestressed concrete construction. The delegation consisted of Professor T. Y. Lin of the University of California, Berkeley; Walter H. Price, Chief, Engineering Laboratories, Bureau of Reclamation, Denver, Col., and past president of the American Concrete Institute; Ben C. Gerwick, Jr., a contractor in San Francisco and president of the Prestressed Concrete Institute; Professor Boris Bresler, University of California, Berkeley; David P. Billington, Roberts and Schaefer Co., consulting engineers of New York; and James D. Piper, vice president for promotion, Portland Cement Association, Chicago.

The delegation visited major Soviet laboratories and construction projects in Moscow and Leningrad. At one laboratory, they witnessed the testing of full-scale prestressed members of 100-foot spans, and visited a special unit working on development of automatic machinery for factory production of large concrete structural units. In both cities, the delegation saw some of the major housing developments being constructed principally of large precast concrete

members, and then visited the factories where the concrete members are being mass produced. The assembly-line production being developed in these recently-constructed factories they reported as "most impressive."

In Leningrad, the delegation observed a large precast and prestressed concrete shell roof being built and tested for projected industrial and exposition buildings. In Moscow, a new 350-foot span prestressed bridge under construction was inspected and the design offices were visited.

The delegates gave talks on American engineering before about 500 Soviet engineers and architects in both Moscow and Leningrad. A great many questions were asked and an interchange of ideas followed each meeting. In addition to their technical visits, the delegates attended the opera, ballet, Soviet Cinerama, the circus and a soccer game. Mrs. Lin and Mrs. Piper accompanied the delegation.



• Left to right are: David P. Billington, Roberts & Schaefer Co., New York City; Walter H. Price, chief, Engineering Laboratories, Bureau of Reclamation, Denver; Ben C. Gerwick, Jr., president, Ben C. Gerwick Co., San Francisco; Prof. T. Y. Lin, University of California at Berkeley; James D. Piper, vice president for promotion, Portland Cement Assn., Chicago; and a Soviet official.

has launched the publication of a house organ to be known as Lightweight News. It will be published quarterly. The first issue is now in circulation.

An article in the first issue of Lightweight News explains that the Expanded Clay & Shale Association is composed of leading producers in a wide geographical area of the United States. The purpose is to foster tests and research on a cooperative basis in order to seek out the finest aggregates and improve construction methods. Present membership of the association includes ten companies. The Association's mid-year meeting is scheduled for July 21 and 22 in Denver, Colo.

Calendar . . .

1958

JULY 21-22 Expanded Clay & Shale Association — Mid-Year Meeting — Cosmopolitan Hotel, Denver, Colo.

AUGUST 4-6 National Cinder Concrete Products Association — Summer Conference of Lightweight Concrete Block Manufacturers — Chalfonte-Haddon Hall, Atlantic City, N. J.

SEPTEMBER 21-25 Prestressed Concrete Institute — 4th Annual Convention — Edgewater Beach Hotel, Chicago, Ill.

OCTOBER 13-17 American Society of Civil Engineers — National Convention — Hotel Statler — New York, N.Y.

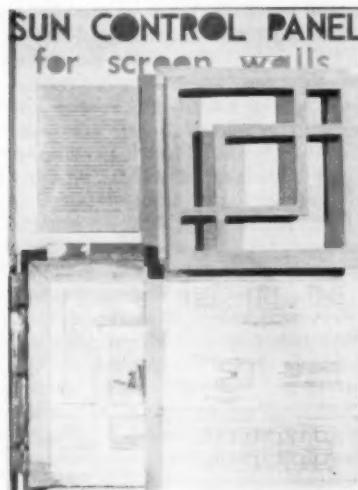
OCTOBER 16-19 Empire State Sand, Gravel & Ready Mix Association — Fall Conference — The Concord, Kiamesha Lake, N. Y.

OCTOBER 23-24 New York State Concrete Masonry Association — Annual Meeting — Hotel Roosevelt, New York, N. Y.

Students Win Prizes On New Uses For Concrete

The Florida Concrete & Products Association, Winter Park, Fla., has announced the results of a contest on new uses for concrete held for students at the University of Florida and the University of Miami. The subject of the contest was: "Imaginative and Inventive Uses of Concrete." The contest was open to architectural and engineering students. The students were encouraged to work out new methods of assembly of standard concrete products or create entirely new products or new structural systems.

Ten winners received prizes for a total of \$400. First prize was \$150; second prize \$75.00 and third prize \$50.00. First prize went to Milton LeGate an architectural student at the University of Florida for a scale model of a decorative sun screen for



building facades. Second prize was awarded to R. H. Hofstetter, also an architectural student at the University of Florida. He devised a new method of using precast or pre-stressed double-T sections as wall panels, the stems of the units serving as forms for columns. Third prize was won by Gail Baldwin, a University of Miami architectural student. He showed how standard lintel blocks could be utilized for decorative effects in residential and commercial construction.

The four judges of the contest were: Samuel Kruse, president of the Florida Association of Architects; Joseph Shifalo, president of the central Florida chapter of the association; John Langley, in charge of student exhibits at the Florida Association of Architects convention, and

Robert Peacock, of the Holloway Concrete Products Co., Winter Park.

Out of This World Dining Place Said to Look the Part

Florida's most unusual restaurant building—a series of "economical triangles"—was designed by Architect John Edwin May, A.I.A., because his clients requested a structure which had to be "out of this world in appearance, but in this world in cost." The building, in fact, had to support perfectly the establishment's odd name, Out Of This World. Architect May, 36, evolved a boldly striking design of consecutive triangles. This afforded him a functional and completely honest structure, one which was both distinctive yet economical to build.

If the building, located on U.S. Highway 1, shows a theatrical flair, it may be traced to the owners' background in Broadway. Bob Loewi was a producer and director, was designer for the sets of Cole Porter's play, *Out Of This World* (whence the name of the restaurant), and also worked in television. Herb Brooks was a set designer and lighting expert. His clients' show business affinity gave Architect May a leading clue as to the style of building they would most appreciate.

May took 12-in. x 14-in. x 29-ft. pre-stressed concrete bents and leaned them together. The resulting triangles were then tied together with a second floor running through the center. Not only did the triangles thus become a rigid unit, but the second floor was also brought out beyond the frame to form special outdoor dining patios on either side.

• Named for Cole Porter's play, "Out of This World," this startling prestressed concrete structure is one of Florida's newest.

The 5,500 sq. ft. building rests on six points on 3-ft. x 6-ft. x 15-in. concrete pads. A cast steel plate on the bottom of each bent was fastened to bolts embedded into the pads.

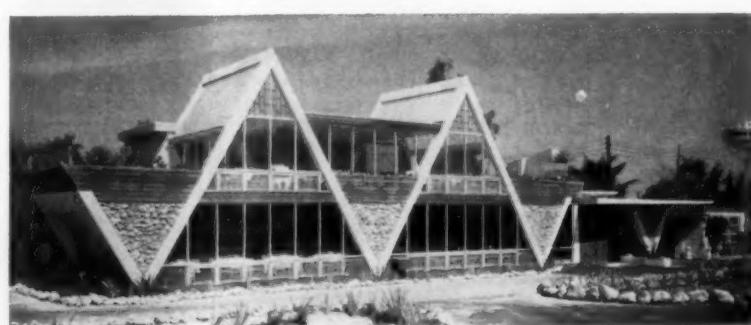
For the second floor, plates had been placed in the pre-stressed bents. Then pre-stressed concrete beams with plates on the ends were welded on. Over these, running the long way from one end of the building to the other, were laid pre-stressed double-T slabs, 4 feet wide. To finish the floor most economically, May specified a 3-inch topping of smoothly troweled concrete, over which was sprayed a plastic base paint.

No columns obstruct the 200-seat restaurant's interior. The first floor has 1,400 sq. ft. for tables and bar; the second has 1,600 sq. ft. including the charming al fresco patios at either end. Kitchens, service facilities, etc., occupy 2,500 sq. ft.

Without bearing walls in his structure, May chose to enclose his space easily and economically with a combination of glass and a new paneling called Kalwall. Employed in the roof of the U.S. Exposition Building in the Brussels World's Fair, Kalwall consists of an aluminum grill sandwiched by layers of fiberglass. It is 1 9/16 inches thick and has splendid structural qualities.

Placed in the peaks of the restaurant's triangles, the coral-colored, translucent Kalwall eliminates the heat and glare of the Florida sun, but emits a soft glow at night visible for a considerable distance along the road. Moreover, May decided its silky quality would be a good texture balance for the brisk concrete of the bents, the rough coral rock in the inverted areas of the building's V's, and the wood fascia.

The simplicity of May's design also helped reduce construction time. Bolting and welding of all concrete members was done in minimum time. R. H. Wright, of Fort Lauderdale, manufactured and erected the pre-stressed concrete bents, beams, double-T's.



Des Moines Ready Mix Plants Settle Strike

The Des Moines, Iowa, Tribune of May 26, reports that a wage dispute which had shut down four ready-mix plants in that city was settled on May 25. The newspaper said that a number of major construction projects had been halted for lack of concrete after the ready-mix plants closed on May 16. Approximately 110 plant workers were affected.

The settlement, the newspaper said, provides for a 14-cent hourly

pay increase effective May 1, plus a 9-cent increase effective next year. Other provisions reported as effective May 1, are time and one-half for Saturday work and a third week of vacation for employees with more than 12 years of employment.

Effective next year, in addition to a 9-cent pay raise, a health and welfare program is to be provided by the employers at a cost estimated to be between 6 and 11 cents an hour.

Drivers have been receiving \$2.02 per hour and mechanics \$2.12.

The newspaper listed the following

as the four firms affected by the controversy: Blue Diamond Concrete Co., J. C. White Concrete Co., Central Ready Mix Co. and Crown Concrete Co.

MEN IN MOTION

Boyce F. Martin has been elected president of the Louisville Cement Co., succeeding *Eugene D. Hill*, who was elected chairman of the board. *John H. Mallon* was elected to the newly created position of senior vice president and *Homer Baker* was made a vice president. *Harold L. Irick* was made treasurer succeeding Mr. Martin. Other organizational changes at Louisville Cement were the naming of *Robert Gibson* and *Frank Lovell* as sales managers *Irving P. Schwerd*, has been named chief engineer of the Belleville, N.J. manufacturing plant of L. Sonneborn Sons, Inc. petroleum refiners and manufacturing chemists. . . . *Eugene R. Kline* is the recently appointed Form-Crete sales engineer for the Florida division of Food Machinery & Chemical Corp. His territory will include Illinois, Indiana, Kentucky, Michigan and the eastern part of Tennessee. His headquarters will be in Cincinnati, Ohio.

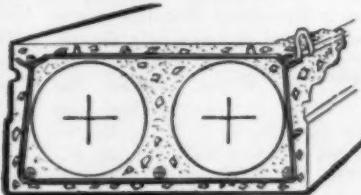
. . . . *Charles J. Hoover*, formerly vice president and treasurer of Waco Manufacturing Co., Minneapolis, has been promoted to executive vice president. *Neil M. Clark* becomes vice president in charge of marketing and research. *Frank X. Mangan* has been made vice president and general manager of Waco's Scaffold division to be located in Cleveland, O. *Frank Aughnay* is named vice president and general manager of Waco's Concrete Form division with headquarters in Chicago. *Dean B. Chenoweth*, will head Waco's Porter Athletic Equipment division with headquarters in Ottawa, Ill. where the manufacturing plant is located. Mr. Chenoweth was formerly vice president in charge of manufacturing for Waco. *Rufus Lisle* has been named as general manager of the National Housing Center of the National Association of Home Builders, in Washington, D.C. He was with the Frigidare division of General Motors for 16 years. *Elmer F. Franz* and *John A. Baldinger* have been advanced to vice presidents of the Yale & Towne Manufacturing Co., Stamford, Conn. Mr. Franz will con-

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FOR PRESTRESSED CORED SLABS

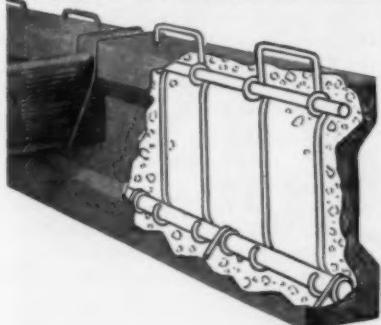
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tinute to serve also as treasurer, an office he has held since 1949. Mr. Baldinger will continue as general manager of the Yale Materials Handling division. *Lester Ashbough*, Columbia Machine representative has been given additional territory including Arkansas, Louisiana, Mississippi, western Tennessee and Alabama. *Marc B. Rojtman*, has been elected president of J. I. Case Co. He was formerly executive vice president. *John T. Brown*, former president and board chairman has been reelected chairman of the board. Mr. Rojtman, formerly president of American Tractor came to Case through the merger with American Tractor in January, 1957. *Ernest N. Chamberlain*, has been appointed Controller of the company succeeding *John D. Grayson*, recently elected president of the J. I. Case Credit Corp. *Harold L. Irick* treasurer, Louisville Cement Co., and *Ralph F. Rau*, treasurer Missouri Portland Cement Co. have been elected to membership in the Controllers Institute of America. *George L. Mors* has been appointed Form-Crete sales engineer for the Florida division, Food Machinery & Chemical Corp. His territory includes Texas, Louisiana, Mississippi and eastern New Mexico. Headquarters will be in Dallas, Texas. *James N. McEntee*, sales manager of the Yale industrial lift truck sales and service branch in Los Angeles, has been promoted to branch manager. He replaces the late *Eric B. Inslay*. *Florian H. Yoste* has been named sales representative for Zonolite Co. in Southern Mississippi and Northern Louisiana. *William F. Zunker* has been appointed sales manager, industrial boiler division of the Cleaver-Brooks Co. He has been assistant sales manager for three years. *Earl C. Planette*, president and owner of the Planette Mfg. Co., Downey, Calif., has been named president of the Wire Reinforcement Institute, Inc. *Ford P. Schusler*, sales manager industrial division, Keystone Steel & Wire Co., Peoria, Ill., has been made vice president of the Institute. Both men were elected to office at a recent meeting of the Institute at Boca Raton, Fla. The Lithibar Co., Holland, Mich., has announced the appointment of *Kenneth P. Allen*, of Hayward, Calif. as its exclusive California representative and the appointment of *Burl A. Munsell* of Dillard, Mo., as exclusive representative for the state of Arkansas. *Don A. Beckenbaugh* has been pro-



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moted to the newly created position of sales and manufacturing administrator of the J. I. Case Co., Racine, Wis. He has been with the company since 1928 and for the past three years has been a divisional sales manager. *Norman O. Wagner* has been elected senior vice president of Alpha Portland Cement Co., Easton, Pa. Election of three new vice presidents has also been announced. These are: *Ernest F. Brownstead*, and *Richard L. Rhodes*, both of Easton and *Joseph D. Bell* of New York City. Mr. Wagner, who joined Alpha in 1953 was formerly district engineer of the Portland Cement Association at Co-

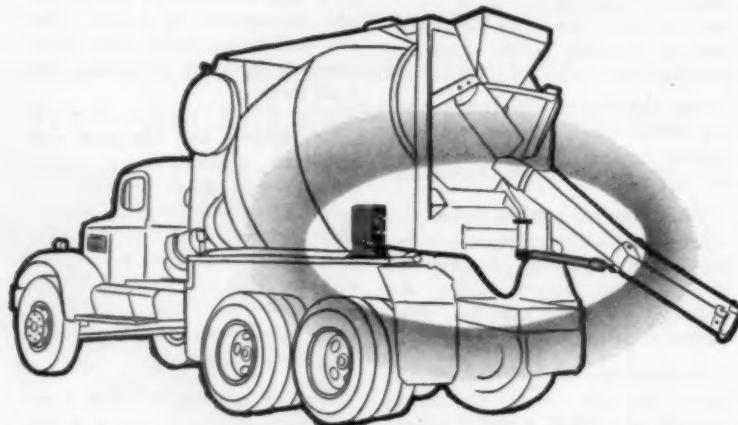
lumbus, Ohio. *Edward R. Daley*, *Paul Weideman*, *Charles D. Blake* and *Charles P. Homan* have been promoted to regional sales managers of Construction Machinery Co., Waterloo, Iowa. Mr. Daley will be in charge of sales in western territory exclusive of Iowa, Minnesota and the Dakotas; Mr. Weideman's territory includes Michigan, Northern Indiana, Northern Illinois, Virginia, the Carolinas, Georgia, Florida, Alabama and Eastern Tennessee; Mr. Blake is assigned to East Central sales territory including Western New York, Western Pennsylvania, Ohio, Southern Indiana, Central Illinois, Kentucky,

Western Tennessee, Northern Mississippi and West Virginia. Mr. Homan, who also manages export sales from New York City is in charge of the Northeastern territory including Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, Eastern New York, Eastern Pennsylvania, Maryland, Delaware, New Jersey and Washington, D.C. *D. Rex Scott* has been appointed manager of planning of the Robertshaw-Fulton Controls Co., Richmond, Va. Mr. Scott was in the company's Cleveland sales office for the past three years. *Francis J. Dunleavy* has been named manager of the Philadelphia plant of Yale materials handling division of the Yale & Towne Mfg. Co. *Louis A. DePolis* has been appointed vice president in-charge-of marketing for LeTourneau-Westinghouse Co., Peoria, Ill. He has been director of sales of the industrial truck division of Clark Equipment Co. since 1953. *Harley B. Stevens* and *James R. Vanderwalker* have been added to the field service organization of Four Wheel Drive Auto Co., Clintonville, Wis., as field service specialists. Mr. Stevens will work in the New England area and Mr. Vanderwalker in the southwest. *John P. Legrand* has been appointed district sales manager for the building products division of the Sika Chemical Corporation's office in Dallas, Tex. *Harold A. Price* has been appointed to represent the Freyssinet Co., Inc. on the West Coast. His headquarters will be in Napa, Calif. Mr. Price was formerly with the Basalt Rock Co. He is vice president and a director of the Prestressed Concrete Institute. *Edward A. Green* has been appointed sales representative of Forrer's Products for Masonry, Milwaukee, Wis. in the Wisconsin, Illinois, and Indiana territory. He will continue as owner of E. A. Green, Inc., slag broker in Milwaukee. *Joseph C. Guptill* has been appointed national product manager for the reinforcing products division of Joseph T. Ryerson & Son, Inc. with headquarters in Chicago. He succeeds *Frank F. Trierweiler*, retired. *Elmer J. Renner* has been appointed vice president in charge of engineering of the Stevens-Adamson Mfg. Co., Aurora, Ill. and *Judson T. Moore* has been named as regional sales manager Standard Products Div., Cleveland office, of the same company. *Burt Mendelson* has been promoted to assistant director of marketing for the commu-

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nications and industrial electronics division of Motorola, Inc., Chicago.

..... Leon Baker has been appointed vice president of Target Central Corp., Kansas City, Mo. He will devote his entire time to distribution of Target saws and blades.

..... David A. Jackson has joined the staff of Alpha Portland Cement Co., Easton, Pa. as sales representative metropolitan and east central New Jersey. His headquarters will be in Plainfield, N.J. Harold E. Buckler has been appointed sales manager of the C. S. Johnson Co. with headquarters in the home office of the company at Champaign, Ill. Mr. Buckler's former position as sales manager of the company's western division at Stockton, Calif. has been filled by the appointment of Jack D. Shoemaker. The company also announces that A. K. Downs has been assigned to devote the greater part of his time to an expanded sales program dealing with large automatic concrete plants and special plant installations.

Richardson Scale Co., Clifton, N. J., has assigned Homer H. Hazelton as Pacific Northwest representative. His territory includes the states of Oregon, Washington and Idaho. Mr. Hazelton had been sales representative in Wichita, Kansas and Chicago, Ill. during his ten years with the company. Robert C. Jordan has been made northern Alabama sales representative of Alpha Portland Cement Co., Easton, Pa. and is assigned to the Birmingham office.

Frank W. Walker West Coast sales manager of Motorola Communications & Electronics, Inc., a subsidiary of Motorola, Inc., has been named a vice president and manager of government sales. His headquarters will be in Washington. D. C. Robert L. Kranhold, a West Coast account executive, has been promoted to the West Coast management. Ray M. Ronald and Frank A. Rostedt have been appointed vice presidents of Hyster Co. of Portland, Ore. Mr. Ronald, who has been with the company for 28 years will have charge of the Tractor Equipment division. Mr. Rostedt will head the newly formed International division. Both will have headquarters in Peoria, Ill. Mr. Rostedt, former treasurer of the company has been, for the past five years, managing director of the Hyster Co. plant in Nijmegen, the Netherlands. He will be in charge of all company activities outside of the United States including manufacturing, sales and services. John F. McCormick has been appointed plant operations manager of Zonolite Co., Chicago. He has been

production engineer and quality control supervisor. Zonolite operates 20 processing plants. Paul Leonard has been appointed vice president of Target Western Corp., Kansas City, Mo. He will devote full time to distribution of Target brand saws and abrasives. He was formerly district representative of Robert G. Evans Co., manufacturers of Target products. Paul J. Wolfert has been appointed to the newly created position of marketing director of Napco Industries, Inc., Minneapolis. He was formerly general sales manager for Blaw-Knox Co., Mattoon, Ill. J. H. Hatch has been elected pres-

ident and general manager of Union Wire Rope Corp., Kansas City, Mo., a subsidiary of Armco Steel Corp. He was formerly vice president and production manager. Maurice B. Hansell, Jr. has been named vice president and production manager. George F. Lacey has been appointed vice president and general sales manager. He had been with Armco's Sheffield Steel division for 22 years. Clinton E. Sartwell has been elected vice president and director of engineering for Oshkosh Motor Truck, Inc., Oshkosh, Wis. He has been chief engineer of the company since 1934.

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15¢
PER BAG OF
CEMENT

WITH PLASTEX "400"

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GUARANTEE: Your money back—if Plastex "400" does not make a stronger block and provide the economy and quality you expect—dollar for dollar and pound for pound!

- 20% lighter color—better texture.
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- Stronger, denser block.
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- Simple to use—add dry to mix.
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2. Does it make a better looking block? **YES!**
3. Does it SAVE wear and tear on equipment? **YES!**
4. Do most better brands do the Job? **YES!**

WHAT'S THE BIG DIFFERENCE?

COST!

FORRER'S XL-100 is 32¢ a pound. With Forrer's you use *Only 1* tablespoon per sack of cement. 128 tablespoons/lb. = $\frac{1}{4}$ cent per bag of cement.

BRAND "B" Sells at the same price of 32¢ lb. — Yet there are only 64 tablespoons per pound. Therefore your cost is $\frac{1}{2}$ ¢ per bag or double the cost of XL-100.

BRAND "C" You pay 17¢ per pound. BUT you need 1 oz. per Bag or about 1¢ per Bag. This is 4 times the cost of Forrer's XL-100.

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Look at the Facts! Then Decide on Forrer's XL-100. See Why . . .

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Note: Forrer's operates *only* through legitimate concrete supply agencies — never through grocery or super markets.



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THE EDITOR'S PAGE

DOUGLAS LEE

No Time to Mark Time!

Some weeks ago, in his address to the American Management Association, President Eisenhower made one particular point that, it seems to us, was more important than anything else he said.

Without attempting to quote him verbatim, the gist of his thought was that any marked return to a general state of well-being in the economy would result from the initiative taken by individual business men throughout the country, rather than from the application of some alleged panacea on the part of government or other source. He stressed the point that any manufacturer who needed to make improvements in his plant, or who needed to revamp his sales and service methods, could find no better time than now to get on with the job. He dismissed as incompetent and inefficient the manager of any business who would put off doing the things he should do until his favorite business indexes showed a little more vigor.

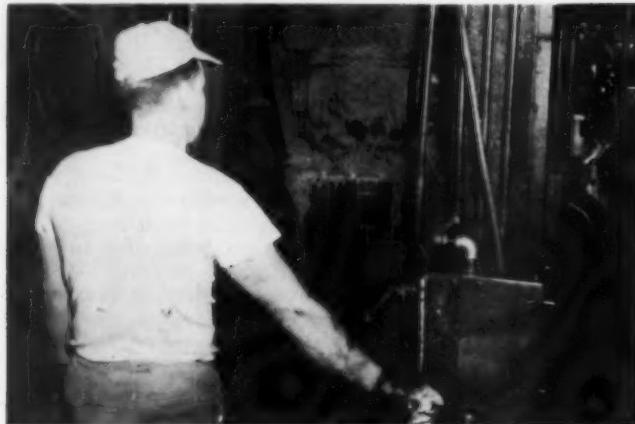
Certainly this thought did not originate with the President. But, he is to be commended for reminding us of it and for emphasizing its importance. It is the sum total of individual decisions and actions that determines the condition of our economy. Actions of government or other bodies can affect our affairs one way or another, but never adversely for very long if enough of us as individuals find legitimate ways to steer our own courses around them.

One of our feature articles this month relates the story of one man who has opened up a new market for concrete products because he had faith enough in himself and his material to persevere through one obstacle after another until he finally produced something of value that he knew all along he could produce. As a result, he and other men in the concrete products industry have a market available to them that another material formerly enjoyed as a virtual monopoly. We hope you will read the story of Mr. Archie Gagne and his associates. Here were small business men, without adequate financing and certainly without influence in high places, who caught and held the interest and respect of one of the country's biggest enterprises because they let nothing interfere with their determination to provide a better, more serviceable product to fill an important need.

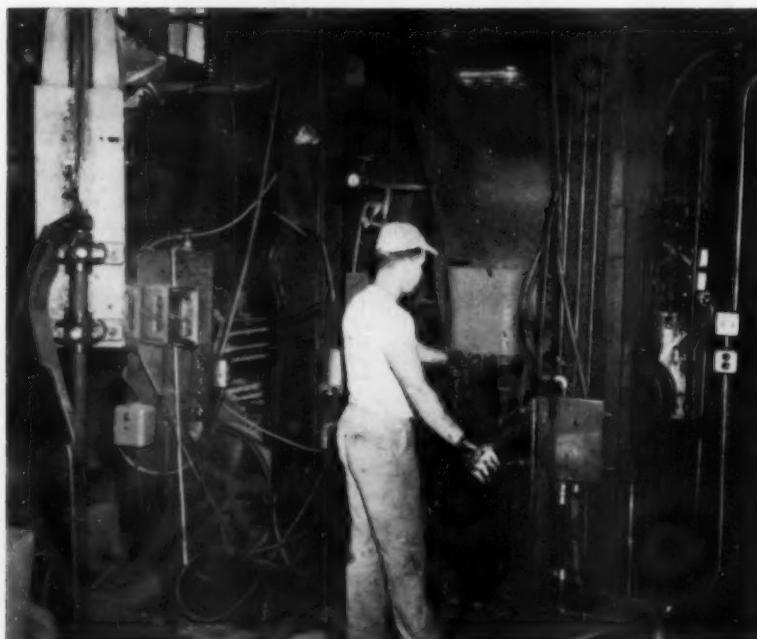
Business is much better in many parts of the concrete industries. In others it continues fair to dull. Nowhere is it hopeless where men know that individual ingenuity and hard work are still the basic ingredients for success. This is a time when the men get separated from the boys.



● Inventor Archie Gagne aligns two of his multiple duct concrete conduits.



● Concrete pours into the mold for making the concrete conduits.



● After vibration, formed section is extruded upward out of the mold.

Machine

Multiple duct concrete telephone conduit and the extrusion process of manufacturing the unit are two recent developments receiving considerable attention both inside and outside the concrete industries.

For years clay conduit had been used almost exclusively for carrying telephone cable underground. But a couple of years back, Archie R. Gagne, Franklin Park, Ill., became convinced that concrete conduit would do the job just as satisfactorily, and probably have some advantages.

How to make the conduit economically was another problem. Extrusion, many concrete technicians held, could not be used successfully in the manufacture of a concrete product. But the machine Mr. Gagne invented,



Extrudes Concrete Conduit

By HUBERT C. PERSONS

developed, and has in operation at Chicago Precast Products Corp., Franklin Park, does just that — it extrudes multiple duct concrete telephone conduit, believed to be the first successful large-scale application of the extrusion principle to the manufacture of such a product.

Acceptance of the concrete conduit is evidenced by the fact that Illinois Bell Telephone Co. has already installed more than two-million duct feet of a three-million-foot contract, calling for six and nine-duct conduit.

The product, named Condex, has a bell end and a plain end so that units, which are usually 3 ft. long, can be joined, as are sewer pipe sections. A Condex unit's outside dimensions are similar to clay conduit, but the ducts are round, $3\frac{1}{2}$ -in. in diameter. Short

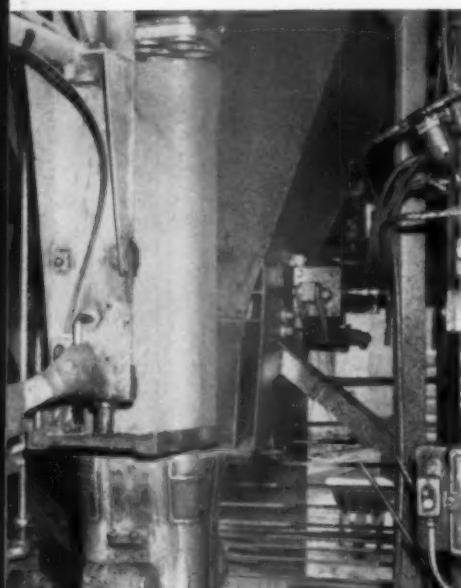
mitered sections also are made to permit turns of any radius down to 10 ft. Connectors are available for joining concrete conduit to clay, transite, or fibre conduit.

Unit weights of Condex multiple duct concrete conduit are 120 lb. for the 4-duct sections, 180 lb. for the 6-duct, and 270 lb. for the 9-duct. These weights, Mr. Gagne says, can be reduced 25 to 30 per cent by using lightweight concrete.

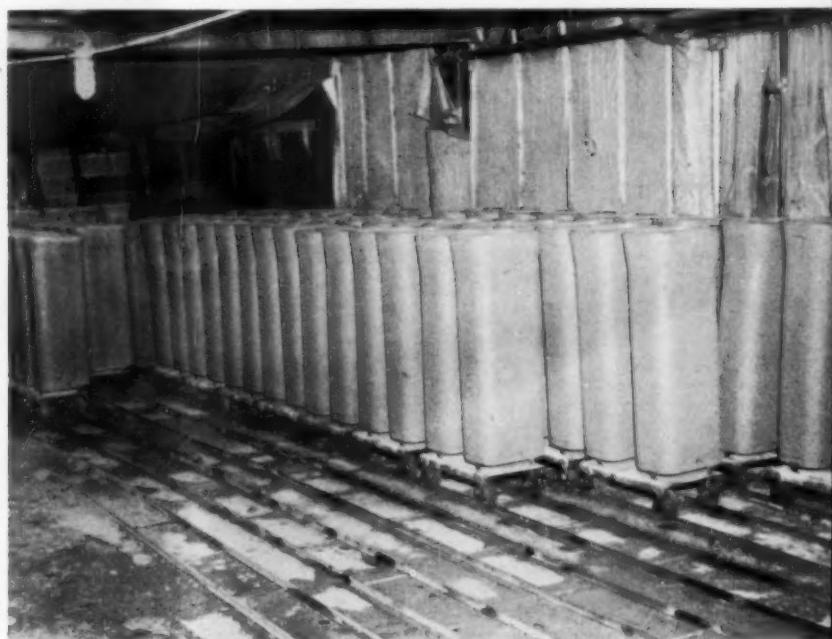
A plant for producing Condex, according to Mr. Gagne, can be equipped with one machine and required accessories for \$25,000. One machine has a productive capacity of approximately 4,500 duct feet of 6-duct conduit in an 8-hour day. Mr. Gagne estimates that a plant with one machine can do an annual business

of half a million dollars if the machine produces on a two or three-shift basis.

The machine developed by Mr. Gagne to produce Condex units has a steel mold of rectangular cross section held in place to a deck having an opening corresponding to the mold opening. The bell end of the mold is at the top and the plain end rests on the deck. A master pallet on the inside of the mold supports a plain pallet having round holes. Mandrels, passing through the holes in this lower pallet, form the duct bore and bevel. A frame with radiating arms connected to a number of push rods is beneath the lower platen. These push rods, which extrude the conduit from the mold, are actuated by an hydraulic piston. An upper



• Off-bearer lifts conduit section.



• Conduit sections sit on dollies in the low-pressure steam curing chamber.

Extruded Concrete Conduit

(article begins on page 28)

platens, through which the mandrels also extend, is at the top of the mold. Pressure is applied to the upper platen by means of a pressure shaft or spindle. A series of electric vibrators, clamped to the outside of the mold,

vibrates the concrete. After a 30-second interval the pressure on the upper platen is relieved, and the entire Condex unit is extruded from the mold by pressure exerted on the bottom platen.

The concrete mixture used in Mr. Gagne's plant consists of 3 parts of $\frac{3}{8}$ -in. limestone chips, 2 parts of No. 2 torpedo sand, and 1 part of type 1, portland cement. Compressive strength at 28 days ranges between 7,000 and 8,000 psi, which is considerably above the 3,600 psi specification strength.

Laboratory tests are reported to indicate that moisture absorption is less than 5 per cent of dry weight, and that the conduit will sustain loadings ranging from 30,000 to 75,000 lb. per linear foot.

Price-wise Condex is competitive with the traditionally-used clay conduit, and, according to Mr. Gagne, Condex can be delivered economically anywhere within a 150 to 200-mile radius of a plant. Here are the advantages, in addition to price, that Illinois Bell Telephone engineers say impelled them to use Condex in recent installations:

1. It can be manufactured locally and hence is readily available for delivery to the trench as desired.

2. It is an all-weather type of conduit that can be placed in zero weather or in a wet trench.

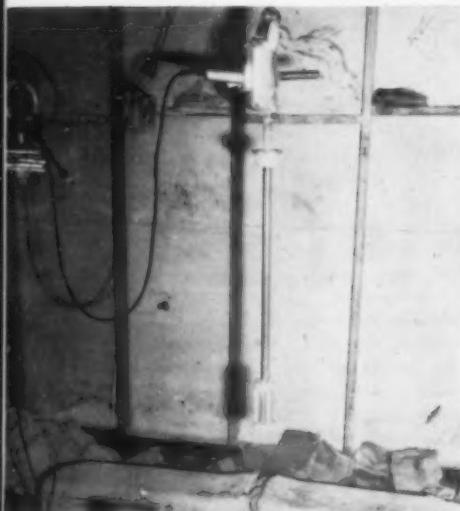
3. No concrete is required to seal joints. Instead, joints are sealed with a cold plastic bituminous compound applied with a pressure gun.

4. The percentage of breakage is small. Units are strong enough to resist considerable shock and sustain heavy overburden. No concrete cover or base is required.

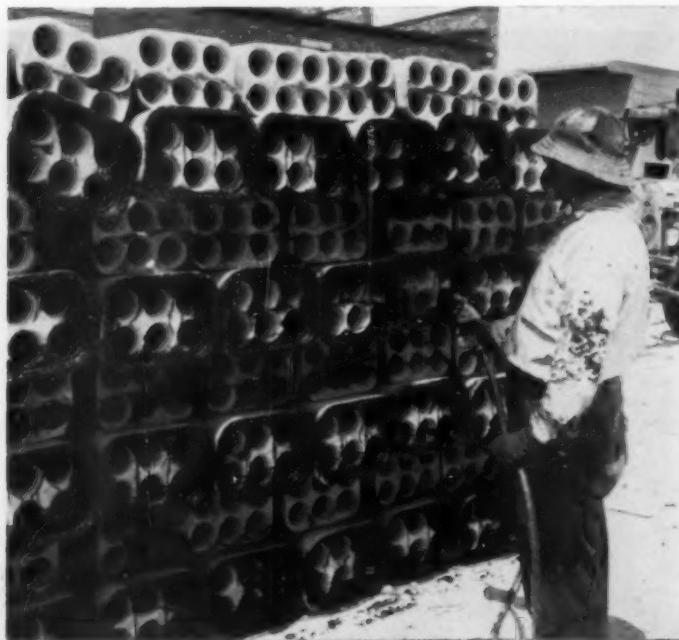
5. Perfect alignment is assured. It is not necessary to match or set dowel pins.

6. It can be laid 20 per cent faster than clay conduit with fewer men. Illinois Bell contractors have laid 1,800 trench feet of 6-duct conduit in an 8-hr. day.

The story of the development of Condex is a history of trial and error, some failures, and finally success. And, initially, it was a gamble of Mr. Gagne's life savings against the belief, long held by many concrete technicians, that concrete products could not be made by extrusion. Archie Gagne refused to go along with that theory. Today he says that probably



● Special scraper smooths each duct.



● Liquid primer sprayed on the bell ends helps seal the joints.



if he had had a little more technical training, he too would have known better than attempt to extrude concrete. That, he says, would have saved a lot of grief, but of course, wouldn't have accomplished anything. But there were friends who believed in the objective, men who were competent engineers, able and willing to suggest corrective measures to counter each failure. And perhaps most helpful of all was the initial contract from Illinois Bell for one million duct feet of concrete conduit before the inventor had demonstrated that he could make it.

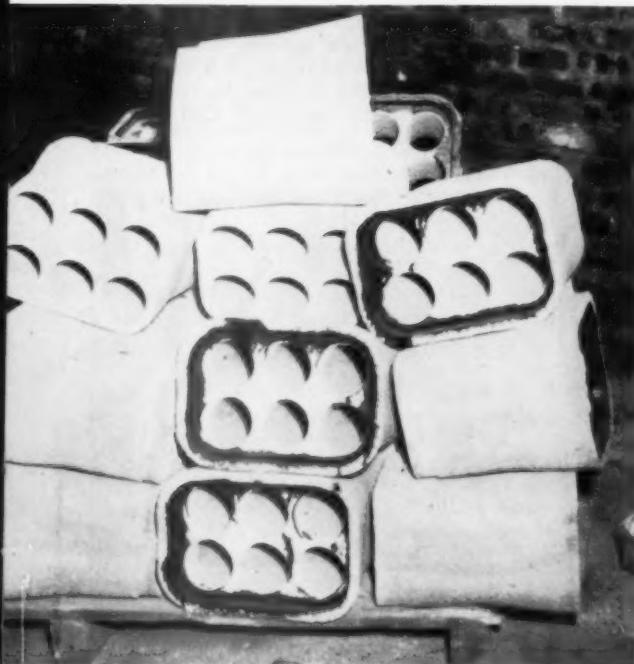
Here is how Bell Telephone people tell the story of the development of Condex, in an engineering report:

During 1956, when Mr. Gagne was plant manager of the Midwest Concrete Pipe Co., in Franklin Park, he had worked with G. P. Clarke, division conduit supervisor of Illinois Bell, and other telephone engineers in regard to the making of precast concrete manholes. At that time he expressed the belief that he could make multiple duct concrete conduit in standard sizes at a price competitive with clay conduit, and inquired as to the potential market for such conduit. Mr. Gagne's inquiry was referred to C. H. Elder and L. B. Deal of the telephone company's State Area Outside Plant Engineering department. It happened that the available supply of all other forms of con-

duit was then approximately a million duct feet short of requirements for 1956. The outside plant engineers discussed the properties of concrete conduit with A. T. & T. engineers, with Bell Telephone Laboratories, and with merchandising people of Western Electric. It was agreed that there was no apparent reason why concrete would not make as desirable conduit as other materials. Illinois Bell engineers then arranged for Western Electric to make a contract with Mr. Gagne for one million duct feet of multiple duct concrete conduit, contingent upon his ability to make an acceptable product at a price competitive with clay conduit. By the time this contract was made official, the Midwest Concrete Pipe Co. plant had been sold, and Mr. Gagne had formed a new company, the Chicago Precast Products Corp., Inc. The interval between the signing of the contract in the fall of 1956 and actual start of production was prolonged by unforeseen difficulties. Inability of local machine shops to deliver parts for the machine on schedule was one difficulty. Then, when the machine was finally delivered in the late fall of 1956, it wouldn't work; it was evident that there wasn't enough power to extrude a six-duct unit from the mold; experiments showed that a slight taper was required for successful extrusion. The mold was then redesigned. After this

there was no difficulty about extrusion but Bell engineers reported that "the product extruded left much to be desired. The bell wasn't always complete, voids appeared in other parts of the unit and the texture of the concrete was too porous to make good concrete." It was evident that the concrete was not being compacted uniformly in the mold. More experimentation was required. It was finally discovered that a slight reduction in the thickness of the steel in the mold, together with proper synchronization of the vibrators mounted on the mold, would produce well-formed units of proper density and texture.

Production of six duct units began on Nov. 12, 1956. The ducts were placed on specially designed dollies and wheeled into a steam room for 12-hour curing at 120 deg. F. and atmospheric pressure. After removal from the steam kilns the duct bores were manually honed and scraped and any rough projections on the exterior of the units were removed. By Dec. 19, 1956, Mr. Gagne's plant had 27,000 duct feet of concrete conduit ready for inspection by Western Electric. Then another blow fell. The Western Electric inspection force rejected the first lot of conduit as not conforming to specifications. They also objected to the fact that Mr. Gagne's plant lacked facilities for moisture absorption tests.



• Short sections permit turns down to a 10 ft. radius.



• Crane lifts three, six-duct concrete conduit sections onto truck for delivery along the trench route.

Extruded Concrete Conduit

(article begins on page 28)

But further inspection by Illinois Bell engineers indicated that the deviations from exact specifications were not serious and that with a little additional smoothing of the conduit bore, the entire lot would be suitable for use in a pending installation in a Chicago suburban area. The manufacturer's lack of testing facilities was obviated by having the required testing done by Pittsburgh Testing Laboratories.

At this point Illinois Bell engineers explained that they believed the experience to be gained in actually placing concrete conduit would provide a proper background for revision of specifications governing inspection procedure at Western Electric.

Accordingly, the conduit was loaded by crane on flat-bed trucks, 160 to 200 sections to the load, and hauled to the job site. There it was unloaded by hand along the conduit route. During December, 1956, when there was little frost in the ground, the conduit could be dropped from the truck without damage. Later when the ground was frozen, each section had to be lifted off by hand. Total breakage in transporting from plant to job site was less than 1 per cent.

The project included placing approximately 7,000 trench feet of 6-duct conduit during the months of December, January and February which included some of the coldest weather of the year. In spite of the severe weather the job proceeded without trouble, and the contractor's crew was reported to be enthusiastic about the ease of handling and joining the concrete units. The job provided a field test for the material and method used in sealing the joints with a pressure gun, as well as a test of the conduit and methods of handling. The bituminous joint sealer is known as Pioneer No. 301, sewer joint compound; it is made by Pioneer Products division of Witco Chemical Co. Bell engineers report that the sealer can be applied in temperatures down to minus 10 deg. F. and does not harden or crack at any time.

Following the completion of the trial field project the specifications were modified in some particulars and minor changes were made in the manufacturing technique. To insure a perfect seal even when the conduit

units are placed while wet, the manufacturer began spraying the inside of the bells before delivery, with a liquid primer. Another change was in the method of smoothing the duct bore. The former method of hand scraping and honing was replaced by a drill press device equipped with three steel blades mounted in a slotted disc. The blades are pressed against the duct surface by centrifugal force as the tool is lowered and withdrawn from the duct bore. Use of this tool, Bell engineers say, has reduced the starting coefficient of friction from 1.0 to about 0.75, which means that an unlubricated mandrel lying in a horizontal position in the duct can now be started in motion with a weight equal to 75 per cent of the mandrel. Tension readings were made during the placing of a 909 pair, 22-gauge, lead-sheathed cable 2.6 in. in diameter and weighing 8.5 lb. per foot. On the trial field project of an 800-ft. run the maximum reading was 2500 lb. to pull 6800 lb. of cable. This reading was made before the new tool was used in smoothing the duct bore.

As the production difficulties were ironed out and the satisfactory specifications adopted, the original contract for one million duct feet was doubled and finally tripled. With this evidence of unquestioned success, Mr. Gagne organized Gagne Enterprises, Inc., and began licensing concrete products manufacturers, in strategic locations, to use his ma-

chines for the manufacture of Condex. By July, 1958, there were eight licensees producing in seven states. These licensees are:

Concrete Conduit Corp., Corona, N.Y.; Chicago Precast Products Corp., Franklin Park, Ill.; Elmore Concrete Products Co., division of North Star Concrete Co., Elmore, Minn.; Empire Condex, Inc., Dayton, O.; J. E. Evans Concrete Products Co., Inc., Shelbyville, Ind.; T. E. L. Precast Products Corp., Edgewater, Fla.; Utah Concrete Pipe Co., Ogden, Utah; and Western Concrete Pipe Co., Sacramento, Calif.

With the organization of Gagne Enterprises, Mr. Gagne became chairman of the board of Chicago Precast Products Corp., and his two early associates, Ray Currens and Nick Accettura became president and vice president, respectively. Mr. Currens was plant superintendent of the Midwest Concrete Pipe Co. when Mr. Gagne began working on the development of conduit. Mr. Accettura was plant foreman. Both men, who were nearing 60 years, had such faith in the possibilities of concrete conduit that they quit their jobs and joined Mr. Gagne in the development work.

Telephone engineers estimate that the potential market for multiple-duct concrete conduit is well over 75 million duct feet a year. The Bell Telephone System requirements for conduit is approximately 60 million duct feet annually. In addition to the telephone market, engineers say the same process can be used for the manufacture of underground conduit for electrical systems in large cities which would represent a very large market. For electrical use the conduit would be designed with heavier walls.



● Precast concrete manholes are stored upside down in the yard at Chicago Precast Products Corp. Openings permit entry of the conduit sections.

Rock - Face

Supplying

The Replacement Market

What with increasing competition, the almost overwhelming concern of most manufacturing industries today is for increased production at a lower unit cost. New machines are designed and built to produce more and more units; products are redesigned to facilitate mass-production on these new high-capacity machines. As a result, products common to the scene just a few years ago have given ground to these newer and less-expensive-to-produce youngsters.

Two easy to point to examples are the old rock-face block and the model A Ford.

For a long while after production of model A's ceased, replacement parts could be obtained from most any repair shop—if the shop didn't have it in stock, all it had to do was go out to the local junk yard and choose the best parts from any one of a number of junked A's sitting around the lot. Or if the individual were a do-it-himself enthusiast, he could find the parts he wanted for himself.

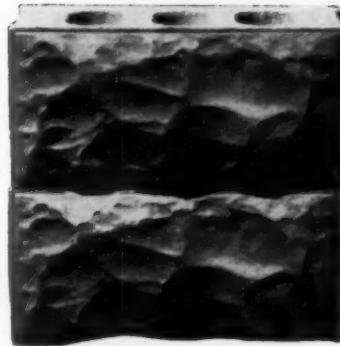
But the years, plus the recent zeal for rebuilding and restoring ancient cars has diminished the supply of parts.

A similar number of years and the newer high-capacity block machines have taken a similar toll of rock-face block production. Fewer and fewer plants produce this once standard of the industry.

One of the plants supplying the replacement market for rock face is Bersano Block Co., Joliet, Ill. And at 49 cents apiece, the delivered price he charges for rock-face block, Mr. Bersano says he's making money.

His production techniques on the 30-odd year old Universal tamp machine are much the same as they were when his father was operating the Bersano plant in Joliet—hand feeding, off bearing by hand, thick wooden pallets, and yard curing. Production capacity, about 250 units a day.

Serving the replacement market extending for 60 miles around Joliet has been a nice little adjunct to Bersano's yearly business—his difficulty though is his own problem of replacement. He finds it hard to obtain parts for his Universal machine.



● Employee hand feeds the rock-face machine.



● Off bearing of rock-face block is by hand.

Merchandising a Company and

Conclusion of a three-part series on Standard Block & Supply Co.



● Standard's fleet of ready mixed trucks are lined up at the rear of the plant as if they were preparing for inspection.

Lansing, Mich., is a fairly large-sized city, with its close to 100,000 actual residents, plus the influx that gravitates to the city, Michigan's capitol, when the legislature is in session.

And almost merging with Lansing on its north is East Lansing — the home of Michigan State University — with its facilities and services to handle the more than 20,000 yearly student enrollment.

Even so, it's fairly easy to find Standard Block & Supply Co. The night-desk clerk at the motel, just a few blocks from downtown Lansing, when asked how to get to Aurelius Rd., returned, "You going to Standard Block?"

His directions from the motel — a good two or three miles of city and suburban driving — were very specific; but, as it turned out, almost unnecessary. A short distance out from the motel one of Standard's spanking-clean, gray-drummed ready mixed trucks, with its yellow lettering and red cab, rolled across an intersection

ahead. And since the driver seemed to be heading in the right direction, the natural thing to do was to follow.

Towering over Standard's office on Aurelius Rd. are the company's freshly painted cement and aggregate bins. And stacked in the rear are the neat cubes of block.

Standard's plant manager, Maynard Simmons, pretty well summed up the company's approach to all equipment when he said, while talking about the fleet of 14 ready mixed trucks, "take care of them, and they last for quite awhile." Three of the trucks, purchased in 1949, when Standard first entered the ready mixed business, still are giving good service, after nearly 10 years of operation. Mr. Simmons mentioned that everything, except the motor, is pulled out of each truck once a year and given a thorough going over. Also each truck is repainted as is necessary, but at least once every year.

In the sales room, the cans of paint, tools, and other accessories are kept in neat, cleanly order on the

shelves or racks, or in the proper bins, just as they would be in a well-run hardware store in a downtown shopping area. The larger items, such as jalousie windows, glass block, other types of windows, and garage doors are set up in special displays so a potential customer can handle the materials and see their exact operation.

And, of course, panels and walls of both brick and block are in obvious display — walls built of block, columns faced with split block and various colors and types of brick, a panel of Shadowal, and a planter sided with split block. On the far side of the sales room from the front door, and beside the telephone switchboard, there's a special display for those contractors, builders, architects, etc., who are reluctant to use block in basement walls. Set smack in the middle of a low partition wall is a fair-sized goldfish pond, complete with live fish and all. And, of course, the fish are fenced in with glass on two sides and concrete block around

Its Products



the balance — the block have two coats of cement-base paint. Any contractor the least bit skeptical of using block in walls and making it waterproof has a hard time reasoning himself around this display.

But by no means is the selling of the company name and the sales of the variety of product lines left entirely to the bright ready mixed trucks roaming the Lansing area and the clean premises at the plant, there's a good deal more to it than that. Two essential portions of their approach can be summed up by two statements: Dick Parisian, Standard's owner with his brother George, said, "The only way to win in business is to do it better than the competition." And Hannibal Abood, sales manager, said, "The company sells service and quality products. The salesmen follow each job daily to see that the customers have enough of everything."

Standard's outside sales force consists of seven men: Three handle commercial jobs; another three sell to the residential market; and the



● Standard's products, including Shadowal, line the interior of the sales room.



● Split-block planter and mural decorate one side of the sales room.

last scouts the bushes surrounding Lansing for rural projects. Assisting these men is a force of three more who handle telephone orders and customer calls at the plant. (Phone orders for ready mixed concrete coming in to the switchboard are transferred directly to the dispatcher in his office above the loading chute).

And backing this sales force is a quite-considerable advertising program, particularly so for a concrete products producer. Dick Parisian said that the company spends 1.7 per cent of gross sales on advertising and promotion; the mediums used to reach customers and potential customers are newspapers, radio, direct mail, outdoor advertising, and some novelty remembrance items. For the

introduction of the more important new items, Standard throws a party to which possible clients are invited.

In keeping with the stated policy of doing it better than the competition is the company's attitude toward its employees. Last year a number of key personnel were sent, at company expense, to schools for further training. And even the topmost management partook of this chance to learn more about business: Dick Parisian took a course in executive management training at Michigan State. The company's sales manager went through the Dale Carnegie series, and he, plus two of the salesmen, spent a week in a seminar at the University of Michigan. Another employee went through the Besser elec-



● Back-up light shines from the fork-lift truck.



● Though you expect wood in a colonial mansion, Judge McClellan's gracious house uses Standard's block painted white.

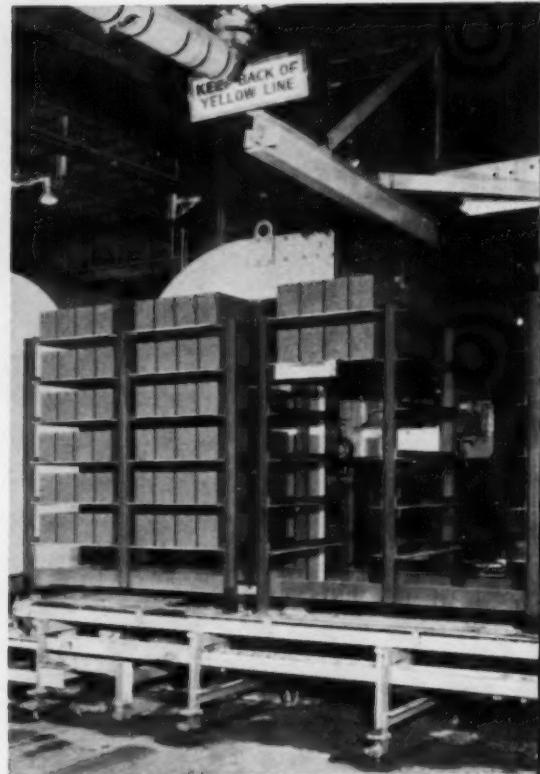
tronic school; still another studied at the Besser foreman school; and a third went to the garage foreman school at nearby Michigan State. Then there were others who attended night school in various subjects.

This company attitude, which amounts to an awareness of employees, carries over into the approach to hourly personnel, as well. Robert E. Smith, office manager, noted that each new employee before he's hired, fills out an application form and signs a safety pledge, besides taking a physical exam. Also, to supplement each individual's history the company hires a firm to run a credit check; this is not just idle prying; the company wants to know its employees — training a person for a job, only to lose him after a few weeks stay, is a costly waste. As Mr. Smith explained, when he was making the statement that the company's employee turnover is less than 25 per cent, "When you hire a man, you hire his problems, along with the individual. And when you know the individual, you can make allowances."

Two other factors that Mr. Smith feels contribute to the well-knit organization are the youth and spirit

of the group and the company's safety program. There are the usual multi-colored signs and safety cartoons around in conspicuous places. And the plant is kept clean of debris. There are two flashing yellow lights above and in front of the loaders and unloaders reading, "keep back of the yellow line;" a sign over the grinding machine which warns users to wear safety glasses; backup lights on the fork-lift trucks; a handy first aid kit; and fencing or grill work around moving parts. Another interesting safety consideration is the use of the company's two-way radio system twice each day to remind the drivers that school is either starting or letting out and to take special precautions during these times.

Research and the future were two of the last discussion topics taken up with Dick Parisian. And in the area of research, Mr. Parisian was quick to admit that there, at least for the present, was a definite weakness and a disappointing aspect of Standard's past. (Mr. Parisian broadened this weakness to include the entire block industry). But he was as quick to say that he could see a time in the future when Standard Block & Supply would employ a man for research on a full-time basis.



● Flashing yellow sign warns viewers to stay back from the loading and unloading equipment.

Some of the products he expects to investigate are a $6 \times 6 \times 24$ -in. block with four cores, and even larger panels. Another possibility is floor and wall tile, using the Spectra-Glaze facing now added to their block.

In the meantime, the company is, as has been pointed out in this series of articles, carrying on a vital program of research into automation — they have installed and are working with automatic batching and mixing equipment, automatic loading and unloading of the block machine, conveyors to carry block out to the cubing area, and an automatic cubing machine. Standard also is carrying on a type of research with its new products—Spectra-Glaze, soffit block planks, and the new textured block, such as Shadowal and Hi-Lite. And possibly the company program of working with employees could be called human research.

This concludes a three-part series on Standard Block & Supply Co., Lansing, Mich. The first of this series, in the May issue of CONCRETE, covered Standard's recently-installed automation; and the second, in June took up the further processing of Standard gives a portion of its block production.

Tax exclusions of truck-mixer components

After a number of petitions, the National Ready Mixed Concrete Association, last fall, succeeded in getting a ruling from the Internal Revenue Service that certain truck mixer components could be excluded in determining "actual unloaded weight" for taxes levied on "highway motor vehicles."

The Truck Mixer Manufacturers Bureau, at the request of the association's board of directors, has since developed average weights, acceptable to the IRS, for those components that can be excluded. They are included in the table, below, additional copies of which can be obtained from the NRMCA, Munsey Building, Washington 4, D.C.

Originally, after passage of the Highway Revenue Act of 1956, the association petitioned the Internal Revenue Service to exempt the entire weight of the concrete mixer, but this request was denied.

Then, in a succeeding brief, the association requested certain components be excluded, since these components had no direct function in the transportation of the cargo. The association's suggestion was that a percentage of the unloaded weight be taken as the portion excludable for tax purposes. This request also was denied, but the IRS did indicate that they would consider excluding some components if they were specified by the association and average weights for these components could be developed.

To this end the Truck Mixer Manufacturers Bureau was requested to develop data on average weights. The bureau's member companies that developed these average figures for the current truck-mixer models are:

Blaw-Knox Company
Construction Equipment Division
Mattoon, Ill.

Chain Belt Company
Milwaukee, Wis.
Challenge Manufacturing Co.
Los Angeles, Calif.
Concrete Transport Mixer Company
St. Louis, Mo.
Construction Machinery Co.
Waterloo, Iowa
The Jaeger Machine Company
Columbus, Ohio
The T. L. Smith Company
Milwaukee, Wis.
Westinghouse Transit Mixer Division
LeTourneau-Westinghouse Co.
Indianapolis, Ind.
Whiteman Manufacturing Company
Pacoima, Calif.
Willard Concrete Machinery Co., Ltd.
Lynwood, Calif.
Worthington Corporation
Plainfield Division
Plainfield, N. J.

Average Weights of Truck Mixer Components Excluded from Motor Vehicle Use Tax

Component	Mixer Sizes		
	2½ to 4½ cu. yds. (Average Weight for Current Units)	5 to 7 cu. yds. (Average Weight for Current Units)	7½ to 9 cu. yds. (Average Weight for Current Units)
1. Separate Engine Assembly, including Skid, Housing, Radiator, Gas Tank and Controls.	790 lbs.	890 lbs.	967 lbs.
2. Transmission Assembly for use with Separate Engine, including Clutch and Gear Shift Assembly, Brake, Final Reduction Drive Assembly, Drive Sprocket, Drive Chain, Chain Guards, Transmission Skid and Transmission Controls.	597 lbs.	776 lbs.	859 lbs.
3. Transmission Assembly for Power-Take-Off Units, including Reduction Cases, Drive Shafts, Universal Joints, etc. Supplied by the Truck Mixer Manufacturer. Also Clutch and Gear Shift Assembly, Brake, Final Reduction Drive Assembly, Drive Sprocket, Drive Chain, Chain Guards, Transmission Skid and Transmission Controls.	1093 lbs.	1301 lbs.	1376 lbs.
4. Water System (except Tank Shell and Supports), including Valves, Gauges, Controls, Piping, Pump, Pump Clutch, Packing Gland, Water Bells, Wash Hose and all Fittings.	94 lbs.	116 lbs.	149 lbs.
5. Open Type End Loader Assembly Complete.	158 lbs.	169 lbs.	170 lbs.
6. Closed or Sealed End Loader Assembly Complete.	585 lbs.	585 lbs.	585 lbs.
7. Sealed Discharger Door Assembly Complete.	448 lbs.	448 lbs.	448 lbs.
8. Discharge Chute Assembly of 10 ft. to 13 ft. including Support Brackets, Chute Hangers and Fittings.	276 lbs.	297 lbs.	297 lbs.
9. Hydraulic Discharge Chute Control Mechanism, (Hand or Electric Operated) — Show Net Weight Gain over Standard Chute Support Equipment.	59 lbs.	62 lbs.	66 lbs.
10. Trunnion Bearing Assembly Complete and Drum Roller Assemblies Complete with Rollers, Bearings, Brackets and Fittings.	236 lbs.	275 lbs.	275 lbs.

Available Colors and How



AT this point in the consideration of colored concrete units it is well to examine the pigments to be utilized. We will consider their selection and examine their physical characteristics, performances, limitations and methods of use in the concrete products plant.

There are many types of colored pigments that find excellent application in paints, rubber, flooring and many other products but which may

be completely unsuited for concrete use for one or more reasons. Economical colors of the necessary purity, tinctorial strength and permanence have long been available to give the concrete products manufacturer convenient coloration with adequate scope for individuality and as wide a range as could be desired. Synthetic iron oxides represent the pigment class that is universally employed in concrete, but we must also include those natural or semi-synthetic iron oxides, which have sufficiently high color strength to be economical. Also we must include chromium oxide greens since they have many of the admirable qualities of the synthetic iron oxides.

Synthetic iron oxides are eminently suited to concrete use because they are completely limefast, absolutely sunfast, do not enter into any reaction with portland cement of any grade, nor with any aggregate. They are not affected by any admixture or additive, which might be used in a concrete plant. Also, they are non-toxic in either bulk form or in the finished product and present no health hazard to manufacturing personnel or to customers.

The iron oxide pigments are not to be confused with dyestuffs, which enter into solution with water or other liquids. Iron oxides are not water-soluble; they impart color to concrete by their physical presence as solid color crystals imbedded in

the portland cement paste and locked in by the hydration of the cement. These color crystals are tough, as well as decorative (witness their use as polishing rouge); they are rigidly controlled in manufacture as to shape and size, both of which are responsible in part for the final color result, along with high temperature kiln firing.

The size of these crystals is the reason for the very high coloring strength of synthetic iron oxides; for instance, it would require over 100,000 crystals of a light yellow iron oxide to measure one inch when placed side by side.

In addition to this fineness, synthetic iron oxides are characterized by extremely easy dispersion in all types of concrete mixes from noslump to slushy, and with all aggregates from crushed stone to the various lightweights. As a general working rule, the complete dispersion of pigment is achieved for all practical purposes when the dispersion of the portland cement has reached its optimum level. In regular concrete mixing operations no extra mixing time is required.

Color Range of Iron Oxides

► REDS

Synthetic iron oxides are available in a wide range of red hues ranging from bright orange-cast reds through medium shades to maroon type hues

Gordon W. Schmidt



to Use Them in Concrete



By GORDON W. SCHMIDT

Third part of a continuing series
on the use of color in concrete

with bluish or purplish undertones. Manufacturers of iron oxides refer to the orange-cast reds as "light reds", to those with blue cast as "dark reds". There are literally hundreds of reds offered by the half dozen primary producers of synthetic iron oxides in North America, but 10 of the shades would provide the concrete products producer with more than the desired scope for selection.

Usually only one shade of red is chosen for colored units production, and this is generally chosen in the "light" range, i.e. with the salmon cast to avoid the blue or violet undertone. Middle range reds are also often chosen for the single red to be used. (Remember that the term "light" does not refer to color depth. In fact, the "light" and "medium" reds tend to be stronger, tinctorially, than the reds with much of a blue cast, and yield deeper and much redder colors in the finished unit.)

►YELLOWS

Synthetic iron-oxide yellows range from "light lemon" through to "buff" in color terminology and the range from the lightest to the darkest is spanned by only six or seven shades. One of the shades is sufficient for any concrete product producer's color program; usually a mid-range shade is most suitable.

►BROWNS

Brown iron oxides are generally classified as light, medium, or dark;

and, unlike the reds and yellows, there is little standardization, with each primary producer offering virtually unique shades. Brown shades may be darkened by the addition of black, made lighter by the addition of yellow iron oxide. The concrete products producer may blend his own browns using a bright red and black (for deep shades) or by using red, black and yellow for lighter and more neutral shades. Generally, though, it is much more convenient and economical to standardize on a manufacturer's color offering.

►TANS, TERRA COTTAS, SALMONS

These are the iron oxide colors that have been developed primarily for the concrete products industry, and, in the larger colored concrete units markets, these are the shades that have won for themselves the major share of color volume. While it is true that many of the intermediate tans, golds, salmons etc., can be achieved by blending reds and yellows, primary pigment producers have recognized the importance of the concrete products market and its requirements. And so they have produced single pigments of these important shades.

Two or, in some cases, three of the tan group may find profitable use in a brick or cast stone color range.

►MAUVES, VIOLETS, ROSE

While these shades are produced

by using medium and dark iron oxides in varying concentrations, they must be considered as a separate color group. As a general rule, these are relatively minor shades but are very important in the formulation of stone color ranges. These shades are usually produced by somewhat lower concentrations of the suitably chosen dark iron oxides and may be deepened and darkened into a purple by the addition of a black iron oxide, which has a blue undertone.

►GRAYS AND BLACKS

In addition to the natural gray which results from the use of portland cement without pigmentation, attractive grays from "smoke" through to "slate" to "charcoal" shades are developed by the use of varying concentrations of synthetic iron-oxide black.

All iron-oxide blacks have a blue undertone; that is, when they are "let down" or diluted with a white material, or a gray one, such as portland cement, the result has a strongly blue character. This blue undertone is usually considered a most desirable quality in the finished material, whether it be brick, stone, or slab. For special shades of gray where the blue cast is not desired, the addition of a small amount of red will throw the gray to a brown cast. The addition of similarly small amounts of yellow or green pigment will yield a gray of more neutral cast.

In concrete products, a pure jet black can only be approached in production units. Even the concrete unit produced with an extremely high concentration of black pigment should be described as a "gray" color.

It is only proper to describe the other black pigments which are utilized in concrete products production, besides iron oxide black. The carbon-black class of black pigments, which includes various lamp blacks, furnace blacks, channel blacks, etc., is characterized by having extremely high tintorial strength as well as undisputed sunfastness and alkali resistance. However, due to the extremely fine particle size of these pigments, it is well to have the pigment manufacturer's assurance that the particular grade of carbon black is designed for or suited to the concrete products application. The ability of some types of the carbon black class to remain "keyed" to the portland cement paste at weathering surfaces possibly is open to some question.

►GREENS

Chromium-oxide green is, in performance, durability, and permanence, very similar to synthetic iron oxide red. It may be used with the same techniques and with the same confidence. However, since the metal upon which it is based is chromium, it is approximately 3 to 4 times as expensive, a fact that tends to limit its application aside from any aesthetic reason. This class of pigment, unlike iron oxides, is produced only in a very narrow color range, so much so that for the purposes of con-

crete products evaluation where there is so much "dirt" value (color-wise) to be overcome in the portland cement, chromium oxide may be considered to be available as one shade only. Quite a number of chromium-oxide based greens are offered however, but these are usually moved to the yellow side by the addition of a yellow iron oxide or to the blue side by the addition of a black of some form or other. Naturally these variations can be accomplished easily in the concrete products plant.

While some areas have shown a fairly active interest in green brick (Irish confetti with color-coded realism) and in high quality cast stone with slate green cast, the major use for green has been in patio tile. Green should not be overlooked in architectural offerings or for custom submissions.

►BLUES

Since blue is outside the range of both synthetic iron oxides and chromium oxide, this color should be approached with caution. There are a number of blue pigment types, which should give very satisfactory results in concrete products, but it must be said that in many instances failures of one sort or another have mysteriously occurred without any apparent reason. Here is where the color manufacturer would be expected to provide a successful history of use in concrete products before recommending a particular grade of blue.

Some blues of the ultramarine class have performed admirably; others with less notable success. Some of the newer phthalocyanine blues have been most successful; a number have

been designed specifically for concrete use. It should be mentioned that the phthalocyanine types have made possible an aqua-marine shade that had hitherto been unattainable, and it seems to be most successful. Phthalocyanine greens especially designed for concrete products use have also made their appearance.

The phthalocyanine class of blues and greens permit shades of greatly increased "chroma" or brightness, combined with depth which can, in many instances, justify the higher cost of pigmentation per unit. This cost is much higher than in the iron oxide range of colors, but may be equal to or less than pigmentation cost using ultramarine blue or chromium-oxide green. At any rate, the manufacturer's full advice should be sought in the use of the phthalocyanines.

►PASTEL COLORS

Some comment on pastel colors is appropriate here, although it will be dealt with at greater length further on in the series. Pastel tints, as achieved in concrete units, have done much to strengthen the industry in architectural acceptance and, at the same time, proved to be a means of achieving favorable pigmentation costs on overall production. In several major colored-unit market areas it was only after the introduction of the softer muted pastel hues that concrete brick or high-styled cast stone was accepted in architecturally conceived building in volume.

As a general rule, pastels are achieved by using low color con-

(Continued on page 45)

SUMMARY OF OPTIMUM COLOR LOADINGS FOR PIGMENTS

Grey Portland Cement — Regular Heavy Aggregate System; Loadings expressed as pounds per 94 lb. sack cement

Note The maximum recommended loading for any synthetic iron oxide color is 10% by weight of the portland cement. Up to this concentration synthetic iron oxides have no weakening influence upon the finished product. Indeed there are a number of fairly well defined threads of evidence that reds and blacks actually increase the compressive strength over that of the unpigmented mix. At any rate, loadings of 10 percent are usually uneconomically high; and, depending upon the set of circumstances encompassed by the aggregate color and grading, the color and characteristics of the portland cement, the water-cement ratio, the method of compaction, the use of wetting aids and others, a saturation point exists beyond which additional pigment added to the mix does not yield any appreciable increase in color value or depth in the finished unit.

	FULL TONE	MID TONE	PASTEL TONE
Light Reds	4 -5½	2 -3	½-1
Medium Reds	4½-6	2 -3	¾-1
Dark Reds (& Indians)	4½-6	2 -3½	1 -1½
Light Yellows	4 -6	N.R.	N.R.
Dark Yellows	4½-6	2½-3½	N.R.
Light Tans	4 -5½	2 -3	½-1½
Dark Tans (Salmon etc.)	4 -5½	2 -3	½-1½
Light Browns	4 -6	2½-3½	¾-2
Dark Browns Black (Iron Oxide)	3 -5	2 -3	½-1½
Green (Chromium Oxide)	5 -6	3 -4	¼-1½-2
(N.R. Not Recommended)	3½-5	2 -3	1½-2

1957 Ready Mixed Concrete Totals

- **Production 71,582,473 cu. yds.**
- **Dollar Value \$961,096,209**
- **Average Value (cu. yd.) \$13.43**

TABLE 1—READY MIXED CONCRETE IN 1954, 1955, 1956, 1957

	1954	1955	1956	1957
Companies surveyed	1,975	2,308	2,314	2,474
Companies reporting	1,218	1,344	1,247	1,312
Production (cu. yds.)	61,914,534	69,764,099	73,161,996	71,582,473
Total value	\$780,310,478	\$871,353,597	\$962,626,586	\$961,096,209
Average value (per cu. yd.)	\$12.28	\$12.49	\$13.16	\$13.43
Portland cement consumed (bbis.)	92,346,330	92,800,000	97,300,000	95,200,000
Sand and coarse aggregate consumed (tons)	100,000,000	112,000,000	117,000,000	114,500,000
Average production	50,833	51,908	58,670	54,560
Median production	27,662	27,396	29,253	28,436

1957 total includes 145 member companies not actually replying to the questionnaire but whose production of 7,875,471 cubic yards were otherwise available. 1957 totals of portland cement and sand and coarse aggregate consumed are Association estimates based on reported actual production of 71,582,473 cubic yards of concrete.

The average production was determined by dividing the total production by the number of reporting companies; the median production is that of the "middle" company — i.e. in this sample of 1,312 companies, the 656th company from the top.

TABLE 2—DISTRIBUTION OF 1957 READY MIXED CONCRETE PRODUCTION BY SIZE OF COMPANY

1957 Production (cu. yds.)	No. of Companies	Cubic Yards Produced	Percent of Reported Production	Percent of Participating Companies	Accumulated Percents of Totals	
			Total Production	Total Companies		
0-10,000	243	1,414,287	2.0	18.5	2.0	18.5
10,000-20,000	277	4,000,503	5.6	21.1	7.6	39.6
20,000-30,000	173	4,142,279	5.8	13.2	13.4	52.8
30,000-40,000	146	5,036,252	7.0	11.1	20.4	63.9
40,000-50,000	112	4,994,434	7.0	8.5	27.4	72.4
50,000-60,000	67	3,642,966	5.1	5.1	32.5	77.5
60,000-70,000	49	3,134,724	4.4	3.7	36.9	81.2
70,000-80,000	46	3,401,228	4.8	3.5	41.7	84.7
80,000-90,000	28	2,361,476	3.3	2.1	45.0	86.8
90,000-100,000	20	1,882,007	2.6	1.5	47.6	88.3
100,000-125,000	38	4,153,849	5.8	3.0	53.4	91.3
125,000-150,000	26	3,559,966	5.0	2.0	58.4	93.3
150,000-175,000	14	2,209,539	3.1	1.1	61.5	94.4
175,000-200,000	11	2,025,387	2.8	0.8	64.3	95.2
200,000-250,000	21	4,656,762	6.5	1.6	70.8	96.8
250,000-300,000	14	3,869,022	5.4	1.1	76.2	97.9
300,000-400,000	14	4,826,976	6.7	1.1	82.9	99.0
400,000-500,000	2	817,286	1.1	0.2	84.0	99.2
over 500,000	11	11,453,530	16.0	0.8	100.0	100.0
Totals	1,312	71,582,473	100.0	100.0	—	—

This table does include the 145 member companies which did not return our questionnaire, but whose total production of 7,875,471 cu. yds. of ready mixed concrete was otherwise available.

BY KENNETH E. TOBIN, JR.

Associate Executive Secretary,
National Ready Mixed
Concrete Association

The National Ready Mixed Concrete Association has completed its seventh annual survey of the production and value of ready mixed concrete. This survey is designed to fill the need for a reliable measurement of the contribution which the ready mixed concrete industry makes each year to the national economy.

Questionnaires were sent to the 2,474 ready mixed concrete companies in the United States of whom we have record. Returns were received from 1,167 companies. In addition to receiving returns from 1,167 companies, limited data also is available on the 145 member companies that did not return the questionnaire. These statistics have been incorporated in the study wherever possible, making a total participation of 1,312 companies, or 53 per cent of the companies surveyed. We believe the reporting companies produced a substantial majority of the total ready mixed concrete production in 1957.

Included are six tables which reflect the results of our survey. Table 1 shows the reporting companies produced 71,582,473 cubic yards, valued at \$961,096,209, with an average value of \$13.43 per cubic yard. The results of our 1954, 1955 and 1956 surveys are also included.

in Table 1. Exact comparisons cannot be made because of the slight difference in the number of companies reporting, but participation was sufficiently extensive to permit reliable order-of-magnitude comparisons with previous years.

Our 1957 survey shows that ready mixed concrete production last year declined, as compared with production in 1956 of 73,161,996 cubic yards, by 1,579,523 cubic yards, or approximately 2 per cent. The slight decline in production when 1957 is compared with 1956 is reflected in dollar values. Last year the value of ready mixed concrete, as compared with 1956, declined from \$962,626,-

686 to \$961,096,209, or less than .2 per cent. The average value of ready mixed concrete increased from \$13.16 in 1956 to \$13.43 in 1957, an increase of 27 cents per cubic yard during the year, or approximately 2 per cent.

As might be expected from the over-all decline in production and value from the peak reached in 1956, the reported average production per company and the median production per company likewise declined slightly in 1957 from 1956 highs. Average production per company in 1956 was 58,670 cubic yards. This average declined in 1957 to 54,560 cubic yards per company, a decline of

4,110 cubic yards per company, or 7 per cent. Similarly, median production declined from 29,253 cubic yards in 1956 to 28,436 cubic yards in 1957. This is a decline of 817 cubic yards, or approximately 3 per cent.

Based on the reported production of 71,582,473 cubic yards of concrete, we estimate that the reporting ready mixed concrete producers used approximately 114,500,000 tons of sand and coarse aggregate and approximately 95,200,000 barrels of portland cement.

Table 2 presents an analysis of the distribution of ready mixed concrete production in 1957 by size of com-

TABLE 3—CONSUMPTION OF READY MIXED CONCRETE IN 1957, BY STATES

State	Total Production (cu. yds.)	Type of Consumer								
		Home-building	Federal Public Works	Non-Federal Public Works	Streets and Highways	Industrial Construction	Commercial Construction	Farm Construction	Other	Not Specified
Ala.	818,586	194,093	53,181	71,153	90,604	178,271	176,103	12,032	8,454	33,695
Ariz.	874,643	460,421	35,402	16,690	57,707	49,369	227,090	19,635	8,329	—
Ark.	345,964	147,990	5,582	20,967	32,316	47,989	75,265	9,562	6,183	—
Calif.	9,910,014	3,035,895	478,500	589,105	1,244,166	1,186,423	1,845,856	124,727	122,960	1,282,382
Colo.	915,211	338,950	2,596	34,991	129,579	151,580	212,221	23,641	21,653	—
Conn.	796,246	397,793	49,490	57,801	43,760	99,637	86,448	7,918	5,735	37,664
D. C.	616,541	119,610	88,257	35,196	66,189	65,000	234,989	5,000	2,300	—
Fla.	2,647,515	1,331,892	30,631	119,068	111,230	171,694	527,859	27,198	33,634	294,309
Ga.	457,418	106,276	71,413	58,208	25,500	81,507	95,163	8,176	5,566	15,609
Idaho	107,415	57,057	3,800	11,850	9,808	6,200	16,100	2,600	—	—
Ill.	5,235,773	1,129,972	84,635	276,239	413,628	405,974	647,187	122,061	57,084	2,098,993
Ind.	1,916,677	469,345	30,595	150,013	208,388	650,942	268,379	75,574	32,646	30,795
Iowa	870,282	203,461	17,438	64,094	108,238	167,492	109,520	128,986	46,305	24,758
Kan.	725,670	244,858	89,380	46,094	126,840	87,238	94,423	15,722	21,115	—
Ky.	691,731	251,440	33,333	46,140	67,202	82,701	83,196	15,802	19,171	92,746
La.	876,625	234,735	35,430	74,660	201,605	144,515	132,882	3,249	49,549	—
Maine	117,001	27,123	16,582	2,000	18,954	12,000	8,886	1,000	671	29,785
Md.	1,360,180	456,242	71,259	149,574	94,666	406,948	145,633	13,881	7,077	14,900
Mass.	1,605,512	440,260	159,511	203,699	193,691	295,002	253,956	9,878	49,515	—
Mich.	2,839,242	817,963	51,323	151,792	450,310	382,929	628,484	17,136	62,148	277,157
Minn.	961,212	256,861	12,920	48,453	111,341	236,768	195,557	20,225	65,087	4,000
Miss.	355,876	101,876	6,800	16,317	34,803	32,574	90,867	8,868	13,571	—
Mo.	1,154,088	447,438	35,962	69,983	150,832	165,316	243,864	17,766	21,820	1,107
Mont.	184,618	60,242	11,262	33,938	19,459	20,127	34,844	4,569	177	—
Neb.	311,840	35,966	20,001	25,044	106,257	42,159	55,161	2,555	24,687	—
Nev.	243,494	97,049	63,808	14,009	17,580	18,680	29,768	2,475	125	—
N. H.	123,279	31,000	34,360	8,050	4,629	18,890	22,800	2,250	1,300	—
N. J.	669,974	214,783	39,350	30,200	43,910	200,384	74,925	19,446	16,946	30,030
N. Y.	5,629,733	1,327,677	456,753	942,305	821,053	882,221	910,864	52,768	128,821	107,271
N. C.	778,187	138,518	58,125	83,447	101,295	168,069	136,406	15,159	13,324	63,844
Ohio	4,723,008	1,336,116	155,938	357,944	736,192	998,576	787,849	107,937	84,215	158,241
Oklahoma	493,293	128,214	12,466	37,180	62,857	98,425	127,436	2,315	24,400	—
Ore.	394,545	98,839	8,600	16,524	35,852	100,262	115,435	13,124	2,260	3,649
Pa.	3,123,428	625,188	57,179	224,229	528,780	658,837	532,084	60,021	192,124	244,986
S. C.	329,749	64,730	23,360	16,660	65,595	44,974	62,221	6,535	8,066	37,608
S. D.	112,273	14,600	30,278	2,800	17,552	13,010	31,557	1,406	1,070	—
Tenn.	442,466	91,930	6,099	91,215	47,273	68,470	82,847	2,612	10,020	42,000
Texas	3,130,093	1,033,879	98,019	250,560	278,508	515,119	735,743	34,312	49,282	134,671
Utah	321,099	151,736	4,201	2,168	3,215	148,355	6,748	2,566	2,110	—
Va.	1,250,546	236,793	222,180	75,643	226,964	114,248	189,045	18,482	123,716	43,477
Wash.	958,832	277,908	64,087	63,568	86,168	172,597	227,902	36,875	17,343	12,384
W. Va.	505,622	83,661	12,456	22,329	26,792	177,793	57,285	5,185	7,579	112,562
Wis.	1,509,259	464,175	20,815	113,473	298,892	262,803	234,628	51,061	34,485	28,927
Alaska	80,200	7,640	45,280	2,470	—	1,000	9,210	100	24,500	—
Hawaii	334,277	52,363	42,043	22,685	51,846	23,743	119,751	—	21,846	—
Other (*)	669,032	260,365	15,301	70,500	135,042	71,509	75,157	4,664	16,364	20,120
Canada	968,959	340,108	38,650	46,200	150,803	180,246	189,104	970	11,607	11,271
Totals	63,707,002	18,555,802	3,019,910	4,892,973	7,888,016	10,163,700	11,275,706	1,141,004	1,480,950	5,288,941

(*) Includes all states and territories where less than three companies reported. (Delaware, North Dakota, Rhode Island, Vermont, Wyoming and Puerto Rico.)

pany, based on returns from 1,312 companies. The largest number of companies are in the five smaller brackets: 0-10,000 cubic yards, in which there are 243 companies, responsible for 2 per cent of the total production; 10,000-20,000 cubic yards, in which there are 277 companies, responsible for 5.6 per cent of the total production; 20,000-30,000 cubic yards, in which there are 173 companies, responsible for 5.8 per cent of the total production; 30,000-40,000 cubic yard bracket, in which there are 146 companies, producing 7 per cent of the total production; and 40,000-50,000 cubic yard bracket, in which there are 112

companies, responsible for 7 per cent of the total production.

Eleven companies produced more than 500,000 cubic yards of concrete last year, accounting for 16 per cent of the total production. Less than 14 per cent of the total yardage was produced by more than 50 per cent of the reporting companies. Conversely, the 6 per cent of the reporting companies in the larger brackets were responsible for more than 30 per cent of the total ready mixed concrete production during the year 1957.

It should be noted in connection with Table 3 through 6 that in states and territories where less than

three companies reported, the data are not separately presented. This procedure is necessary in order to carry out our pledge to reporting companies that no use will be made of the data which might make possible the disclosure of individual company figures.

Table 3 presents consumption data on a state basis. As our 1956 survey also showed, home building continues to be the largest market for ready mixed concrete, accounting for 29 per cent of the total production for which we received a breakdown by types of consumer. The other consumption categories retained the same ranking in 1957 as in 1956, with commercial construction in second place, accounting for 18 per cent of the total; industrial construction in third place, accounting for 16 per cent of the total; streets and highways in fourth place, accounting for 12 per cent of the total; non-Federal public works in fifth place, accounting for 8 per cent of the total; Federal public works in sixth place, accounting for 5 per cent of the total; and farm construction in seventh place, accounting for somewhat less than 2 per cent of the total. Other uses accounted for slightly more than 2 per cent. Approximately 8 per cent of the reported 63,707,002 cubic yards was not specified as to type of consumer.

Table 4 presents data which was not developed by our previous surveys. This year for the first time we expanded our questionnaire to obtain a breakdown between production by transit mixing and production by central mixing. This additional information, together with data on the number of proportioning plants and central mixing plants, which previously appeared in Table 2, now comprise the new Table 4. The survey reveals that 74 per cent of the total yardage reported was produced by transit mixing, with the remaining 26 per cent being produced by central mixing. California, New York and Ohio, in that order, produced the greatest amounts of transit mixed concrete. Illinois, Ohio and Pennsylvania, in that order, produced the greatest amount of concrete by central mixing. The 1,167 companies furnishing the data in Table 4 reported operation of 2,191 plants, with an average production per plant of 29,077 cubic yards. Of the 2,191 plants, 1,810 were proportioning plants, which reported an average annual production of 25,895 cubic yards per plant. The remaining 381 plants are central mixing operations

TABLE 4—READY MIXED CONCRETE PRODUCTION BY TYPE OF OPERATION IN 1957, BY STATES

State	No. of Companies	No. of Proportioning Plants	Produced by Transit Mixing (cu. yds.)	No. of Central Mixing Plants	Produced by Central Mixing (cu. yds.)
Ala.	21	21	476,647	13	341,939
Ariz.	7	17	666,205	1	208,438
Ark.	13	17	173,213	3	172,651
Calif.	96	246	8,927,182	21	982,832
Colo.	12	22	805,393	3	109,818
Conn.	18	24	760,308	1	35,938
D. C.	4	12	616,541	—	—
Fla.	35	60	1,812,788	14	834,727
Ga.	22	25	331,562	5	135,856
Idaho	4	7	107,415	—	—
Ill.	93	95	2,815,623	35	2,420,150
Ind.	43	42	592,972	32	1,323,705
Iowa	63	75	728,192	12	142,090
Kan.	16	22	547,672	6	177,998
Ky.	25	24	469,635	8	222,096
La.	11	19	490,704	6	385,921
Maine	5	12	117,001	—	—
Md.	11	16	666,622	5	693,558
Mass.	23	42	1,484,589	4	120,923
Mich.	47	69	2,669,253	8	169,989
Minn.	27	28	477,353	10	483,859
Miss.	16	16	187,330	4	168,346
Mo.	24	35	762,987	11	391,101
Mont.	9	9	95,526	4	98,092
Neb.	3	3	26,297	5	285,543
Nev.	5	14	187,741	1	55,753
N. H.	7	12	123,279	—	—
N. J.	14	18	669,974	—	—
N. M.	3	5	200,072	—	—
N. Y.	51	132	5,509,409	5	120,324
N. C.	26	33	529,356	6	248,831
Ohio	97	148	3,335,732	38	1,387,276
Oklahoma	10	20	493,293	—	—
Ore.	9	8	114,919	4	279,626
Pa.	81	109	1,843,384	25	1,280,044
S. C.	9	6	79,066	6	250,683
S. D.	6	1	4,637	5	107,636
Tenn.	10	15	280,740	5	161,726
Texas	52	119	2,575,427	17	554,666
Utah	3	5	179,940	3	141,159
Va.	20	43	826,128	4	424,420
Wash.	28	24	214,965	23	743,867
W. Va.	14	32	505,622	—	—
Wis.	51	60	1,125,371	9	383,888
Alaska	3	2	12,500	4	77,700
Hawaii	4	9	253,854	1	80,423
Other ⁽¹⁾	10	19	461,899	5	207,133
Canada	16	18	543,420	7	425,539
Totals	1,167	1,810	46,870,738	381	16,836,264

(1) Includes all states and territories where less than three companies reported.
(Delaware, North Dakota, Rhode Island, Vermont, Wyoming and Puerto Rico.)

Available Colors and Quantities to Use in Concrete

(Continued from page 40)

centrations with resulting manufacturing economy. Appos of this fact, the offering of pastel pigments that carry recommendations for loadings at the same level as full tones should be viewed with care.

Popular pastels include a light loading of a brown to produce a "sandstone", a very light loading of a red to produce a "rosewood" hue,

and, of course, the light loadings of black to produce "smoke" and "slate" shades. Yellow is one of the few pigments, which does not tend to produce any attractive pastel when used in a standard portland system, due to the high level of "dirt" value (again, a colorman's term) coincident with portland cement.

The production of pastels with

white cement systems will be covered in a later issue.

COLOR BLENDING

The question often arises regarding the blending of the three primary colors (which we all learned about in kindergarten with the help of water colors) to achieve green by mixing yellow and blue, orange by mixing red and yellow, purple by mixing red and blue. Basically these laws of

Ready Mixed Totals

(article begins page 41)

and these reported an average annual production of 44,190 cubic yards per plant.

Table 5 presents the production and value data on a state basis. California led all states with a reported production of 9,910,014 cubic yards; New York took second place, reporting a production of 5,629,733 cubic yards; and Illinois ranked third with a reported production of 5,235,773 cubic yards. Ohio led all states in total number of companies reporting with 97. California with 96, Illinois with 83, and Pennsylvania with 81, followed in that order. The average value per cubic yard ranged from \$22.79 in Alaska, \$17.52 in Hawaii, and \$16.21 in West Virginia, to \$11.42 in Alabama and Canada. It should be noted that Canadian totals are included in the tables for the first time this year, pursuant to requests for such data from Canadian members.

The present Table 6 appears in our survey for the first time. It incorporates certain of the data which appeared in the former Table 5 and presents in addition new data, on a state basis, on equipment and plants in the ready mixed concrete industry. The 1,167 companies contributing data used in this table reported ownership of 17,816 mixers and/or agitators, or an average of slightly more than 15 such units per company. These 1,167 companies reported ownership of 2,018 stationary plants and 173 portable plants, or an average of approximately two plants per company.

TABLE 5—READY MIXED CONCRETE PRODUCTION AND VALUE IN 1957.
BY STATES

State	No. of Companies	Production (cu. yds.)	Value (\$)	Average Value per cu. yd.
Ala.	21	818,586	\$ 9,348,654	\$11.42
Ariz.	7	874,643	10,655,096	12.18
Ark.	13	345,864	4,268,318	12.34
Calif.	96	9,910,014	115,278,045	11.63
Colo.	12	915,211	11,014,294	12.03
Conn.	18	796,246	11,061,147	13.89
D. C.	4	616,541	8,734,636	14.17
Fla.	35	2,647,515	40,229,296	15.20
Ga.	22	467,418	6,419,550	13.73
Idaho	4	107,415	1,411,188	13.14
Ill.	83	5,235,773	70,331,507	13.43
Ind.	43	1,916,677	24,985,805	13.04
Iowa	63	870,282	13,713,292	15.76
Kan.	16	725,670	8,872,604	12.23
Ky.	25	691,731	10,068,240	14.56
La.	11	876,625	11,842,890	13.51
Maine	5	117,001	1,808,536	13.75
Md.	11	1,360,180	18,493,024	13.60
Mass.	23	1,605,512	19,771,112	12.32
Mich.	47	2,839,242	38,948,081	13.72
Minn.	27	961,212	13,924,241	14.49
Miss.	16	355,576	4,568,317	12.84
Mo.	24	1,154,088	15,285,613	13.25
Mont.	9	184,618	2,918,395	15.81
Neb.	3	311,840	4,696,413	15.06
Nev.	5	243,494	3,693,129	15.17
N. H.	7	123,279	1,838,612	14.91
N. J.	14	669,974	9,842,645	14.69
N. M.	3	200,072	2,828,854	14.14
N. Y.	51	5,629,733	81,365,075	14.45
N. C.	26	778,187	11,130,457	14.30
Ohio	97	4,723,008	68,480,286	14.50
Oklahoma	10	483,293	6,371,134	12.92
Ore.	9	394,545	4,996,281	12.67
Pa.	81	3,123,428	44,471,527	14.24
S. C.	9	329,749	4,411,422	13.38
S. D.	6	112,273	1,500,291	13.36
Tenn.	10	442,466	5,871,023	13.27
Texas	52	3,130,093	39,700,658	12.68
Utah	3	321,099	3,911,347	12.18
Va.	20	1,250,548	17,828,062	14.26
Wash.	28	958,832	12,740,788	13.29
W. Va.	14	505,622	8,196,349	16.21
Wis.	51	1,509,259	20,303,005	13.45
Alaska	3	90,200	2,055,680	22.79
Hawaii	4	334,277	5,857,482	17.52
Other (*)	10	669,032	8,409,633	12.57
Canada	16	968,959	11,064,600	11.42
Totals	1,167	63,707,002	\$855,320,634	\$13.43

(*) Includes all states and territories where less than three companies reported.
(Delaware, North Dakota, Rhode Island, Vermont, Wyoming and Puerto Rico.)

color apply in concrete systems and with the pigments described above, but for all-around use it doesn't work out. The pigments have dissimilar chroma characteristics, have varying degrees of strengths and the process is being carried out in a system using a grey portland cement which, incidentally, can have a green cast, a brown cast, a true grey cast depending on its origin.

Iron-oxide reds and yellows blend well together and some producers continue to blend in the plant in this way. Similarly reds, yellows, and blacks blend to form any degree of brown desired and chromium-oxide green is quite at home when blended with iron oxides.

But for most manufacturers it is not only easier to choose the properly designed pigment for the shade required, and in many more cases than not, it is more economical as well. In recent years the color manufacturers, who have paid special attention to the needs of the concrete products industry have developed a number of straight pigments expressly designed for intermediate concrete shades. In addition to the convenience of using a single pigment loading, these colors are blended, or specially processed, or kiln-fired to achieve optimum results and are color controlled under conditions impossible to duplicate in the concrete products plant.

4 In Concrete Industry Picked For AIA Awards

The National Concrete Masonry Association and the Perlite Institute are among the trade associations being honored by awards in the 10th annual building products literature competition. Universal Atlas Cement Co. and Moi-Sai Associates, Inc., are among the individual companies selected for awards. The competition is sponsored by the American Institute of Architects and the Producers' Council. Its purpose is to provide manufacturers and associations with a standard for appraising their own promotional literature and space advertising directed to architects by recognizing the year's most outstanding examples. Presentation of awards was scheduled to take place in Cleveland, Ohio on July 7, during the 90th annual convention of the AIA.

The NCMA's award is a Certificate of Merit for its brochure, "Concrete Masonry Walls"; the Perlite Institute receives a Certificate of Exceptional Merit for its Perlite Design Manual; the award to Universal Atlas Cement Co. is a Certificate of Merit for a publication advertisement, "Tomorrow's Designs"; Moi-Sai Associates, Inc. receives an Honorable Mention for its published advertisement, "Shading the Sun the Beautiful Way."

Judges of this year's competition were these nationally known AIA architects: Paul Schell, Pittsburgh, Pa., Chairman; Howard L. Cheney, Chicago, Ill.; Howard G. Hall, Baltimore, Md.; Harry B. Tour, Knoxville, Tenn.; and Robert Law Weed, Miami, Fla.

TABLE 6—EQUIPMENT AND PLANTS IN THE READY MIXED CONCRETE INDUSTRY

State	No. of Companies Reporting	No. of Mixers or Agitators	No. of Non-Agitating Units	No. of Stationary Plants	No. of Portable Plants
Ala.	21	247	27	31	3
Ariz.	7	186	—	16	2
Ark.	13	120	8	20	—
Calif.	96	2,237	428	239	28
Colo.	12	208	18	20	5
Conn.	18	192	13	24	1
D. C.	4	207	20	11	1
Fla.	35	580	65	71	3
Ga.	22	183	10	28	2
Idaho	4	37	9	5	2
Ill.	83	1,233	111	129	2
Ind.	43	564	47	67	7
Iowa	63	371	26	82	5
Kan.	16	190	13	26	2
Ky.	25	278	18	32	—
La.	11	215	13	24	1
Maine	5	54	1	12	—
Md.	11	274	5	20	1
Mass.	23	408	99	46	—
Mich.	47	886	100	69	8
Minn.	27	311	52	37	—
Miss.	16	122	24	17	3
Mo.	24	435	67	43	3
Mont.	9	63	14	11	2
Neb.	3	84	—	8	—
Nev.	5	67	6	8	7
N. H.	7	52	2	10	2
N. J.	14	205	17	18	—
N. M.	3	74	—	5	—
N. Y.	51	1,464	96	127	10
N. C.	26	277	22	36	3
Ohio	97	1,592	71	177	9
Oklahoma	10	152	4	20	—
Ore.	9	79	29	10	2
Pa.	81	1,177	122	127	8
S. C.	9	93	8	12	—
S. D.	6	31	37	6	—
Tenn.	10	136	1	17	3
Texas	52	758	99	113	23
Utah	3	72	11	7	1
Va.	20	303	9	46	1
Wash.	28	343	96	44	3
W. Va.	14	284	47	31	1
Wis.	51	439	51	61	8
Alaska	3	52	33	6	—
Hawaii	4	71	21	5	5
Other ⁽¹⁾	10	163	19	21	3
Canada	16	247	72	23	2
Totals	1,167	17,816	2,061	2,018	173

(1) Includes all states and territories where less than three companies reported.
(Delaware, North Dakota, Rhode Island, Vermont, Wyoming and Puerto Rico.)

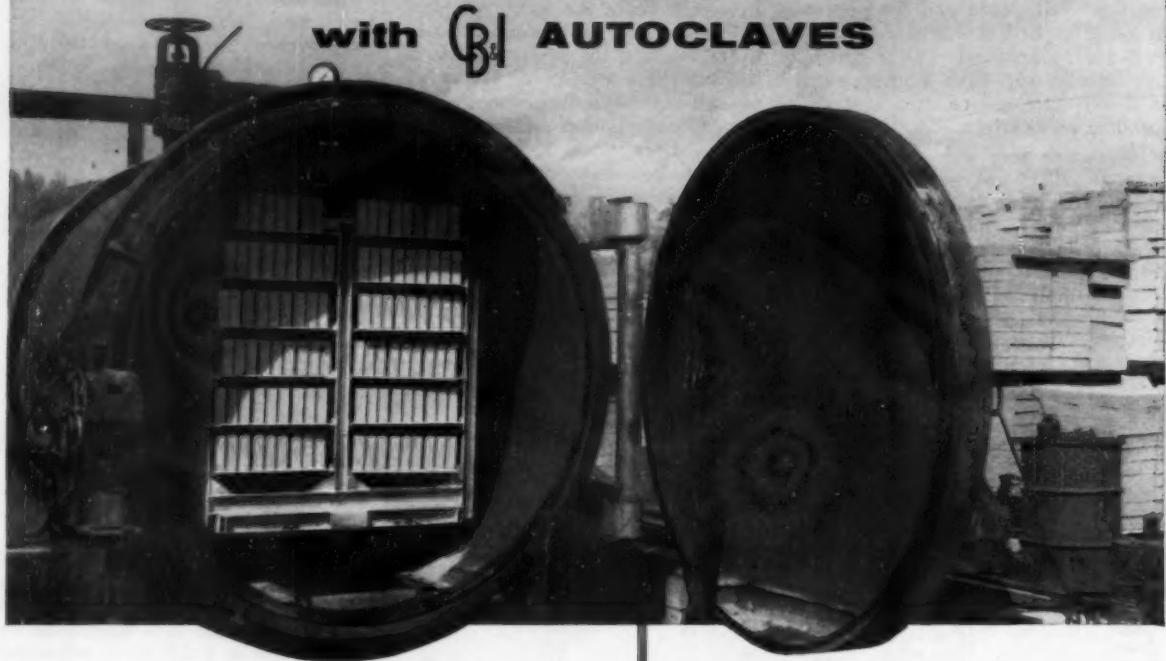
Permanente Cement Makes Offer For Olympic Plant

Permanente Cement Co. has made a firm offer to purchase all of the stock of Olympic Portland Cement Co. Ltd., it has been announced by Wallace A. Marsh, Permanente's vice president and general manager. Olympic, an English company, is the owner of a 1,750,000 barrel capacity cement producing plant at Bellingham, Wash., and cement storage facilities in Seattle, Wash. The purchase, Marsh said, is contingent only upon acceptance by the holders of at least 90 per cent of the outstanding stock.

PRESSURE STEAM CURING:

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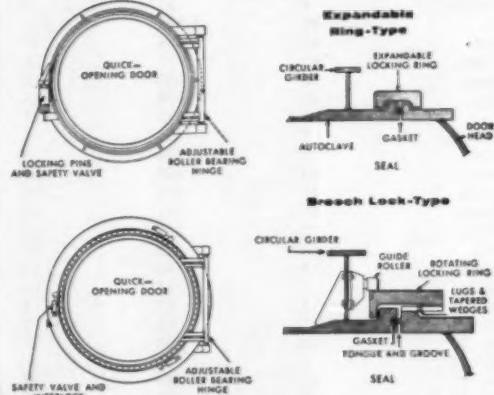
CB&I Autoclaves offer profit-minded suppliers the opportunity to: *Improve quality of concrete products • Get better inventory control • Provide faster customer service.*

From preliminary planning to complete installation, CB&I-built Autoclaves, with quick-opening doors, are designed, fabricated and installed to your exact requirements by experts who are craftsmen in their field as you are in yours. They are backed by CB&I's seven decades of experience and ingenuity in building pressure vessels.

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CB&I Quick-Opening Doors



Your CB&I vessel can be equipped with either of two highly efficient, time saving, *quick-opening doors*, as shown above. These doors are of exclusive CB&I design—to insure maximum speed and safety. A CB&I *Bolted Door* can also be provided.

C-43

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Atlanta • Birmingham • Boston • Chicago • Cleveland • Detroit • Houston • Kansas City (Mo.)
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San Francisco • Seattle • South Pasadena • Tulsa
Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY,
GREENVILLE, PA. and at NEW CASTLE, DELAWARE.

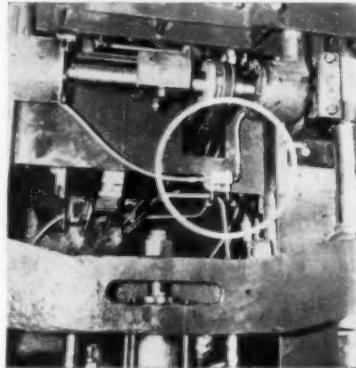


Standard CB&I Autoclaves . . .
are built with inside diameters of from 7 to 10½ feet and in lengths ranging from 82 to 120 feet. Special units can be designed and furnished, complete, to meet any requirement.

A Look at What's New in EQUIPMENT and MATERIALS

Automatic Oilers For Columbia Block Machines

Columbia Machine, 107 S. Grand Ave., Vancouver, Wash., announces that an automatic oiler is being installed on all Columbia block machines. This oiler, the company says, assures positive lubrication of vibra-



tor shaft bearings. The oiler is adjusted to the cycling of the machine and can be set so that it never overloads yet gives constant lubrication regardless of the number of cycles per minute. Conversion kits for easy installation are available for all models of Columbia block machines.

Enter H45 on Inquiry Card

Blaw-Knox Bulletin Features Truck Mixers

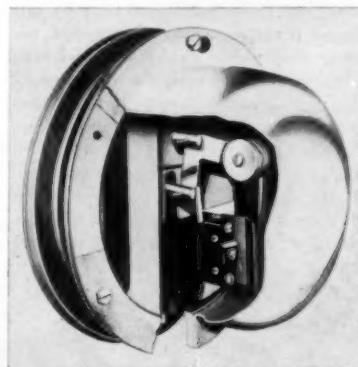
Specifications and illustrations of Hi-Boy truck mixers and their component parts are highlighted in a new 16-page bulletin available from Blaw-Knox Co., Mattoon, Ill. The two-color bulletin describes 5, 6 and 7-cu. yd. Hi-Boy models and their many features. These include maneuverability, lateral stability, easy maintenance, fast charging and discharging drum, and automatic water

measure. Attention is also devoted to cab control operation, transmission design and lubrication, power unit, drum design and operation, water systems and tanks, and abrasion resistant discharge chute. A section on specifications outlines basic machine requirements and optional equipment. The bulletin, No. 2622, may be obtained by writing Sales Promotion Department, Construction Equipment Division, Blaw-Knox Co., Mattoon, Ill.

Enter H46 on Inquiry Card

Improvements Made In Bin Level Indicator

Important improvements in the Bin-Dicator, automatic bin level indicator and control unit, are announced by The Bin-Dicator Co., Detroit. Most significant change, which the manufacturer says is particularly helpful on units to be installed in hard-to-get-at locations, is a twist lock cover. This new design has no nuts or bolts which can drop.



It incorporates slotted hex head screws which need only to be loosened so that the cover can be turned and lifted, exposing the entire operating mechanism.

Another improvement in the Bin-Dicator is a vented housing which relieves any pressure build-up as the diaphragm is flexed in response to the pressure of the material in the bin, silo, hopper or chute. New construction features include: a drilled and tapped frame for assembly of cover, drilled and tapped frame for assembly of diaphragm and diaphragm retainer ring, and a diaphragm assembly which has perforated mounting holes to simplify replacement and/or change of diaphragm if required. For information on the improved Bin-Dicator, write The Bin-Dicator Co., 13946 Kercheval Ave., Detroit 15, Mich.

Enter H47 on Inquiry Card

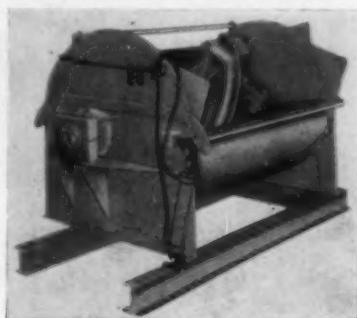
New Barber-Greene Belt Feeder Has Wide Range

Barber-Greene Co., Aurora, Ill., announces a new belt feeder with capacity range from 5 to 550 tons per hour. The new unit, Model F-8, was designed for applications where a high degree of accuracy is required in feeding construction aggregates. A pre-engineered, packaged unit, the Model F-8 is shipped completely assembled and ready for immediate installation in a reclaiming tunnel, in a track or truck dump hopper, beneath elevated bins or in either a steel or wooden bulkhead.

Two drive arrangements are available, both assuring consistent accuracy and fine control of feeder output. Through the medium of a gearmotor and a roller chain drive, constant belt speed may be attained, with capacity controlled by a quadrant-type control gate equipped with a fine screw adjustment. As an optional, variable belt speed may be obtained through a variable speed reducer and roller chain arrangement, working in conjunction with a quick-adjusting quadrant gate having control settings in 1-in. increments. This permits adjustment of capacity by means of varying the gate opening; by alteration of the belt speed or by both means. Manual controls may be mounted on the reducer or remote

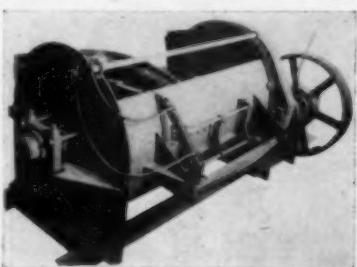
Speed Batch Production With Air-Operated Gates

A choice of two devices to operate pneumatically the discharge gate on batch mixers is offered by Bergen Machine & Tool Co., Inc., Nutley, N. J. One model, Standard Model No. 9040, utilizes most of the existing



mixer gate mechanism, eliminating the chain and sprockets. An air cylinder fastens to the end of the mixer gate operating shaft; a push-button control opens and closes the gate, smoothly and easily.

The second model, a Heavy Duty Model, No. 9039, features a unique



toggle locking system which the manufacturer says insures positive closing and holding of the mixer gate. A complete door reinforcing frame is

controls may be installed at any point in a plant setup.

Information on the F-8 feeder may be obtained from Barber-Greene Co., 400 No. Highland Ave., Aurora, Ill. or from Barber-Greene Canada Ltd., Barber-Greene Rd., Don Mills, Ontario.

Enter H48 on Inquiry Card



furnished with this model to prevent flexing of the door shaft and to eliminate all possibility of material leakage during the mixing cycle. Adjustability is built into the assembly, making it impossible for the discharge gate to spring open during mixer operation. Both devices require only ordinary air pressure for their operation, and are easy to install on existing batch mixers. They provide sensitive response, and ease of control allows batch loads to be discharged rapidly and completely.

Details on both models are available from Bergen Machine & Tool Co., Inc., 189 Franklin Ave., Nutley 10, N. J.

Enter H49 on Inquiry Card

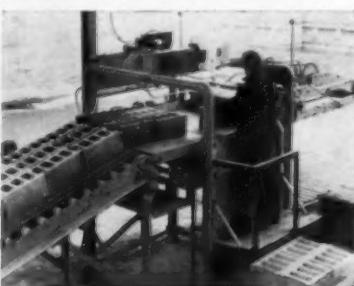
Add Bushed Arbor Holes To Prestressing Reels

A friction reducing metal bushing in the arbor holes of reels for prestress strand has been developed by Leschen Wire Rope Division, H. K. Porter Co., Inc., St. Louis, Mo. Designed to overcome two common problems frequently encountered by manufacturers of prestressed concrete units, the company explains that the bushing assures that the roundness of the arbor hole will be maintained throughout the unreeling process. This eliminates the need for extra pulling force to turn the reel when an unfinished hole gets out of round. By reducing friction on the shaft, the bushing also permits exceptionally easy unreeling.

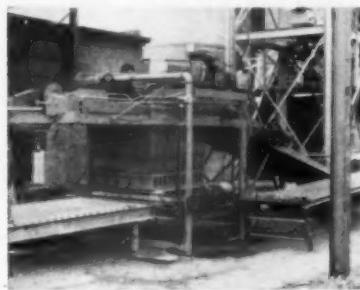
Enter H50 on Inquiry Card

Call Besser Auto-Cuber New Step in Automation

In introducing the Besser Auto-Cuber, the manufacturer, the Besser Co. of Alpena, Mich., sees the new cuber as another step toward automation in the concrete block industry. Block are carried in a steady flow on a roller conveyor from a Bes-



ser-Matic Unloader inside the plant. One man adjusts some of the block to proper positions, inspects and culls out any imperfect block. Cubes are



formed by the Auto-Cuber as fast as they arrive from the unloader of racks. Completed cube is automatically discharged to the gravity roller conveyor, then lift-trucked to the storage yard.

Enter H51 on Inquiry Card

Chain Belt Introduces Heavier Duty Railporter

An improved, heavier-duty Railporter is now offered by Chain Belt Co., Milwaukee. The new model is a portable self-propelled materials handler that transports concrete and other construction materials over an easily set up monorail system. It makes round trips from supply point to destination unattended, even stopping automatically. Compact in design, the Railporter has a large capacity. The power unit and the



trailer unit carry a 29.2 liquid-level cubic-foot capacity; 20 cu. ft. of concrete or 3,000 lb. of blocks, bricks, stone, lumber. The 12-ft. rail sections can be set-up at the rate of 450 ft. of track per hour with a three-man crew. Additions to the tracks as the job progresses or the adding of curves and switches to meet any job location needs, are easily made.

The new Railporter has greater strength at every stress and working point. Larger bearings are used in the outboard roller. Double-shoe brakes have been added. The stop plugs which are rail-inserted for automatic halting of the unit are heat treated for extra long service life. Controls are further simplified. Railporter now features fully enclosed design with the engine housed inside

a smart, functionally styled steel housing. Much greater accessibility is designed in the new Railporter. The standard V-drive belts which provide tractive power can be replaced in minutes without any disassembly. A new catalog complete with job set-up information and product features is now offered by Chain Belt Co., 4701 West Greenfield Ave., Milwaukee 14, Wis.

Enter H52 on Inquiry Card

Rotary Deburring Brush Is Developed by Oswalt

Oswalt Engineering Service Corp., Forest Park, Ill., announces the development of an electrically operated rotary deburring brush which can be attached to any of the three cam-operated block machines. It is designed to remove fins and roughness from a concrete block as it comes from the mold. The device is powered by a 1/6 h.p. motor, is mounted in



a rigid frame and is light enough to be lifted into place by one man. The rotary brush can be adjusted to compensate for wear. It is delivered ready to install with a plug-in electrical extension. Complete details may be obtained by writing Oswalt Engineering Service Corp., 1335 Circle Ave., Forest Park, Ill. The unit is priced at \$150.00 f.o.b. plant.

Enter H53 on Inquiry Card

Forrer's Introduces Waterproofing Paste

A new integral waterproofing paste which the manufacturer says reduces water absorption drastically in concrete, is being marketed by Forrer's Products for Masonry, of Milwaukee, Wis. According to the manufacturer the product plasticizes and air entrains as well as waterproofs concrete, cast stone and all types of pre-cast units as well as stucco and mortar. The illustration shows almost no water absorbed by the block on the

left, all the water being absorbed by the other block. The water was applied to both block at the same time.

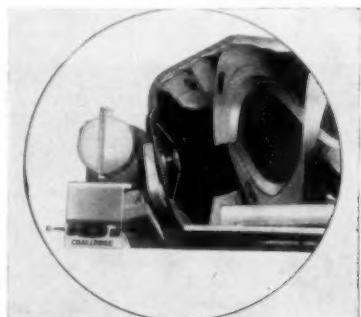


Concrete products manufacturers may have free, a 5-gal. pail of the new integral waterproofing paste to make their own test if they write to Forrer's Products for Masonry, 2225 Humboldt Ave., Milwaukee 12, Wis. Those requesting a free sample will be asked to pay freight charges. The new paste is being sold in 40 lb. pails and 100 and 400 lb. drums.

Enter H54 on Inquiry Card

Challenge Mixer Has Blades of New Design

One of the principal features of the 1958 Challenge Pacemaker truck mixer is the new SMD mixing blade design. Challenge SMD specification mixing blades are reinforced with a high tensile steel flange. Together, the mixing blade and reinforcing flange are a full 5/16-in. thick at the wear point. In addition the wear point is hard faced with special material developed to resist abrasive action encountered in ready mixed concrete service. These new mixing blades are expected to give more than twice the service of other blades.



Challenge truck mixers are distributed by Cook Bros. Equipment Co., 3334 San Fernando Rd., Los Angeles, Calif., who will provide full information on request.

Enter H55 on Inquiry Card

Deco Anchor Bolt Fitting Is Set Flush With Floor

The Decatur Engineering Co., Decatur, Ill., is introducing a new anchor bolt fitting designed to eliminate hazard of a protruding anchor bolt and help avoid the costly errors so often found in the initial setting of anchor bolts when concrete is being placed.



The Deco Anchor is flush with the floor until the actual installation of equipment or column is made. The box-like fitting, attached to the top of the anchor bolt contains an oblong nut, movable in all directions sufficiently to compensate for the usual error in setting anchor bolts.

The machine or column is attached to the fitting by use of a stud of the desired length, thus eliminating the hoisting and lowering of machines over a fixed bolt by the trial and error method.

The fitting is cast from high strength malleable iron, which has a strength ratio of approximately 2 to 1 over that of the size bolt for which it is designed. A temporary washer is centered in the flush area of the casting to protect the movable nut during the pouring of concrete. The anchor bolt is centered in the fitting when attaching to setting templates, and is no more difficult to install than conventional type anchor bolts. The large flat surface of the casting provides an ideal arrangement for leveling and doweling where it is necessary.

Deco Anchors are available as fit-

tings only or complete with anchor bolt and stud to specifications in sizes from $\frac{3}{8}$ " to $1\frac{1}{2}$ " bolt diameters in $\frac{1}{8}$ " increments. Further information can be obtained by writing Dept. E, Decatur Engineering Co., 519 East William St., Decatur, Ill.

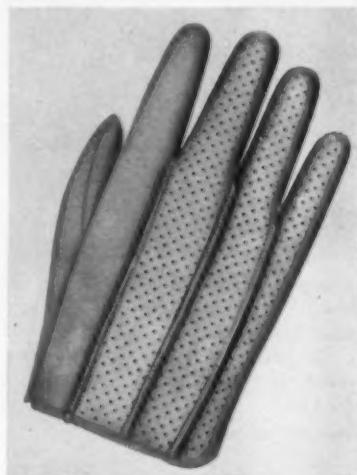
Enter H56 on Inquiry Card

Performance Report On Autoclave Curing

A performance report on the installation of a Bailey control system to a six-autoclave block plant in Detroit, has been issued by the Bailey Meter Co., Cleveland, Ohio. The performance report, listed as Au10. 1-1, describes and charts automatic operation of six, 86-ft. autoclaves in producing maximum strength and uniform quality block in 12 hours at the plant of Cinder Block, Inc. Copies of the performance report may be obtained by writing to Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio.

Enter H57 on Inquiry Card

5 to 1, provides a positive non-slip grip, is lint-free and washable, yet low in cost. Available in men's and women's slip-on style and in men's driver's style with elastic inset.



For more complete information write Edmont Mfg. Co., Coshocton, Ohio.

Enter H58 on Inquiry Card

New Clark Brochure On Gas Fork Truck

Specifications, dimensions and features of the CY-20, a 2000 lb. capacity, pneumatic-tired, gas-powered fork truck, are contained in a new six page, four color brochure available from Industrial Truck division, Clark Equipment Co., Battle Creek, Mich. Major components are described and more than a dozen operating features of the unit are illustrated. Tables and graphs indicate grade and capacity ratings and up-right dimensions.

Enter H59 on Inquiry Card

Another OSWALT Improvement

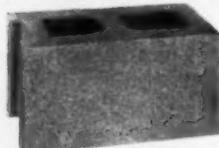


insures

**NEATER APPEARANCE
EASIER TO STACK
HIGHER SALABILITY**

OSWALT has developed a practical Rotary De-Burring Brush that cleans the fins and projections from the top of the blocks as they come from the mold. This Rotary Brush Unit is inexpensive to buy, economical to operate, convenient to install and it fits all cam operated machines.

SMOOTH BLOCK TOPS



**EACH BLOCK IS
BRUSHED
SMOOTH
AS IT LEAVES
THE MOLD**

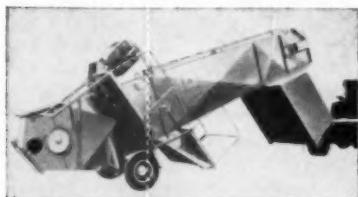
Price \$150.00

Order One Today

1335 Circle Ave., Forest Park, Ill. Phones: ESTebrook 8-4664 (Chicago), FOREst 6-2798 (Suburban)

C. S. Johnson Brings Out New Dual Purpose Unit

The dual-purpose "Grasshopper" is the most recent addition to the growing line of C. S. Johnson low-cost, portable units for the construction industry. Serving both as a cement unloading and batching plant, the unit is equipped with one or two manual or automatic 14 cu. ft., 1,000 lb. beam cement batchers. Cement for paving operations is moved directly from railroad hopper cars or cement truck trailers to batch trucks. Automatic interlocked controls, dial scales and a graphic recorder can be used with the "unit" to meet rigid airport and highway specifications. Separate 100 psi. air compressor is required for automatic controls.



When the "Grasshopper" is used as a transfer plant, the batchers are replaced by a 42 bbl. capacity extension to the standard 33 bbl. surge hopper. Dump trucks and cement trailers can be filled at a rapid 300 bbl. per hour rate, 380 bbl. per hour by special order. Because of its light weight, compactness, built-on wheels and towing eye, the unit is easy to move between jobs and erect. Clearance dimensions in the towing position are: height, 11 ft.-9 in.; width, 6 ft.-4 in.; and length, 30 ft.

Power for operation of the "Grasshopper" is supplied by either an air-cooled gasoline engine, water cooled engine or electric motor drive. Low-pressure air for cement aeration is supplied by an air compressor driven by the engine.

For specifications and complete information on the new unit, write C. S. Johnson Co., Champaign, Ill.

Enter H60 on Inquiry Card

New Catalog Ready On Transcrete Truck Mixers

Construction Machinery Co., Waterloo, Iowa, has ready for distribution a new 12-page catalog on its 1958 Transcrete truck mixer. Advanced design features of the 1958 unit which the manufacturer says give faster charging and speedier discharge, are shown in close-up photographs and drawings. Copies of the new Transcrete catalog are available through the Advertising department, Construction Machinery Co., Waterloo, Iowa.

Enter H61 on Inquiry Card

IT'S BRAND NEW



Cleveland's RC-5 — a new quiet, light-duty electric vibrator

- IT'S QUIET
- DEVELOPS 275 LBS. OF CENTRIFUGAL FORCE
- ALL ELECTRIC
- OPERATES ON LESS THAN .5 AMP. ON 220 V.

Grease Reservoirs In Bergen Guide Liners

Bergen's No. 43A, 37 $\frac{1}{2}$ -in. diameter, lubricated bronze guide liners are now being equipped with Alemite fittings. These parts now have neat, easily-filled grease reservoirs incorporated within the liners where they'll do the most good. The same efficient lubrication feature is also available in Bergen's 3 in. diameter \times $\frac{3}{4}$ in. high liners, No. 1022A with a tapped hole, and No. 1023A with a straight hole. Steel core inserts, with drilled holes, are incorporated in Nos. 43A and 1023A, to resist peening and wear from the adjusting screws.

For more information on these products write to the Bergen Machine & Tool Co., Inc., 189 Franklin Ave., Nutley 10, N. J.

Enter H62 on Inquiry Card

Compact design for light duty on bins and hoppers, chutes, tubes, and other storage facilities for bulk materials. Prevents bridging, plugging and arching — eliminates processing delays.

Write for detailed information and prices.

Air or Electric

Portable or Permanent

Silent or Standard

Bin Stuck Lately?

THE
CLEVELAND
VIBRATOR
COMPANY

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BING VINYL EQUIPMENT SIGNS SAVE COST . . . SAVE WORK

Bing signs eliminate expensive hand painting of equipment signs and go on fast and easy. Just pull off backing paper and smooth in place. No glue, soaking or troublesome details required to apply.

Bing signs are painted on tough, durable vinyl to keep that new, fresh look for years. They are available in any size, shape or variety of color.

Bing can duplicate your trade mark or prepare a new design for you. Write today for free samples and prices. Send sketches of trade mark for exact quotes.



BING TRANSFER SIGNS Berkley,
Michigan

★
SELL
YOUR
USED
EQUIPMENT
THROUGH
CONCRETE'S
CLASSIFIED
PAGES
★

Bergen Offers Special ABK Metal End Cores

Bergen's exclusive ABK-Metal end cores which are special precision castings of nickel alloys made in high-frequency electric induction furnaces, are being offered in stock sizes by Bergen Machine & Tool Co., Inc., Nutley, N. J. Having great strength, abrasion resistance and ductility, ABK-Metal is so hard it can't be machined. The manufacturer claims superior wearing qualities to any other end cores now commercially available.



ABK-Metal end cores are made in a varied assortment of stock sizes, shapes and designs, or "specials" which can be produced within a short time. "Hand Grip", "Trade Mark Groove", or "Load Bearing Indicator" features are also available on option. These long-lasting end cores, the manufacturer says, hold dimensional tolerances closer than the average block maker would believe possible. Design features emphasized by

the maker include precision ground backs for perfect size and snug fit against the end core liner; a good thick hex nut, firmly imbedded, to provide plenty of thread engagement; and recessed holes for $\frac{3}{4}$ " studs accurately located for perfect seating.

Additional information on ABK-Metal end cores can be obtained by writing to the Bergen Machine & Tool Co., Inc., 189 Franklin Ave., Nutley 10, N. J.

Enter H63 on Inquiry Card

lift are within easy reach of the operator and the new tank design gives greater visibility to the operator. The tower can be tilted a full ten degrees backward or forward. The counterweight box can be properly weighted to compensate for any load within



the capacity of the unit. The inner channel is crossbraced to prevent distortion under load. The new Sherman Fork Lift has individual brakes, allowing turning in close quarters, and moves easily over any ground and under any weather conditions. It will travel any place a tractor will go, opening new storage space in unpaved and heretofore unusable areas.

Since the steering wheel and driver's seat are reversed, the Sherman Fork Lift moves in the opposite direction from normal tractor operation. This puts the big rear wheels under the load for extra lifting safety, maximum traction and a cushioned ride for fragile loads.

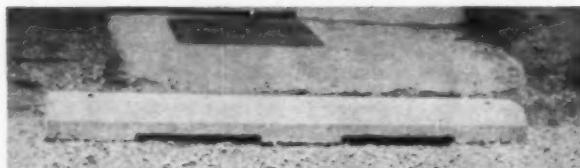
The manufacturer points out that the Sherman reversing transmission provides the same flexibility of speeds in reverse that the tractor has in forward gears — quick shift and reverse direction in any gear speed.

Among available accessories are special concrete block forks, a hydraulically-operated log clamp, a dozer blade, and a hydraulic scoop bucket designed for such bulk materials as sand and gravel.

Enter H64 on Inquiry Card

PROFITABLE PRECAST SPECIALTIES

STANDARD FORMS EASY TO POUR AND STRIP
IMMEDIATE DELIVERY FOR SUMMER BUSINESS



AUTO PARKING CURB 6'-7"-8'. DRAINAGE INSERTS OPTIONAL
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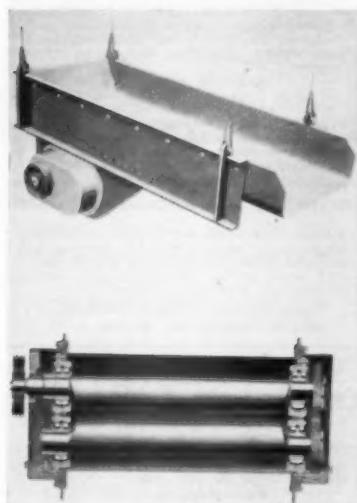
Pick Booklet Features Instantaneous Heaters

A 12-page brochure describing Pick Instantaneous steam injection hot water heaters has been published by Pick Mfg. Co., West Bend, Wis. The brochure, illustrated in two colors, gives specifications and capacities of the seven sizes of Pick instantaneous water heaters. Pictures of many types of installations in service are shown with diagrams of installations for various purposes. Copies of the brochure may be had by writing Water Heater division, Pick Mfg. Co., West Bend, Wis.

Enter H65 on Inquiry Card

Link Belt Has New Vibrating Feeder

For controlled feeding of a wide range of bulk materials at high rates, Link-Belt Co. has just announced its new Straightline Geared Counterweight Vibrating Feeder. Capable of absorbing great impacts, the new



unit can be mounted directly under a hopper or bin to feed, convey, pick or scalp high tonnages of materials, including lumps up to 36-in. in diameter. A geared eccentric shaft mechanism produces a high intensity straightline stroke that ranges in amplitude from $\frac{1}{4}$ to $\frac{1}{2}$ in. up to 900 rpm.

Where the rate of feeding bulk materials has to be controlled and the headroom is limited, this new vibrating feeder provides a solution. It lends itself to a variety of adjustments; speed of vibrator can be changed by adjusting variable speed belt drive; hopper gate can be adjusted to control material depth; horizontal stroke can be adjusted to control material trajectory.

Available in a wide range of dimensions to suit many types of installation purposes, the new feeder can be floor supported or suspended by cables from bins, tanks or hoppers. It can also be equipped with special features such as dust-tight covers, scalping decks, etc. As an aid to lengthening conveyor belt life, the new feeder can also be equipped with a short grizzly section that will permit fines to fall onto the belt first and in this manner cushion or pad the fall of heavy abrasive lumps.

Complete information on the new Straightline Geared Counterweight Vibrating Feeder is contained in leaf-

let 2670, available by writing Link-Belt Co., Dept. PR, Prudential Plaza, Chicago 1, Ill.

Enter H66 on Inquiry Card

Hyster Issues Booklet On Lift Truck Design

Performance, construction and maintenance are important things to consider in selecting the right lift truck for handling jobs, according to a 14-page brochure available through Hyster Co., Danville, Ill. This describes a series of pneumatic tired trucks in the 3000 to 5000 pound capacity range. Features discussed under performance include such vital operating characteristics as maneuverability, travel speeds, grade climbing ability and visibility. Under a section titled "Construction", the brochure cites the critical elements of a lift truck such as body and frame, transmission, clutch and hoisting mechanism and points out the type of designs that hold up under rough usage.

The booklet also shows the various features of this series of trucks which

contribute to serviceability. These features, the manufacturer says, include lift-out floor plates for access to the engine and power train, a cantilever hood and a split-clutch housing that permits clutch change in only two hours. For copy of this brochure write Hyster Co., 1003 Myers Street, Danville, Ill.

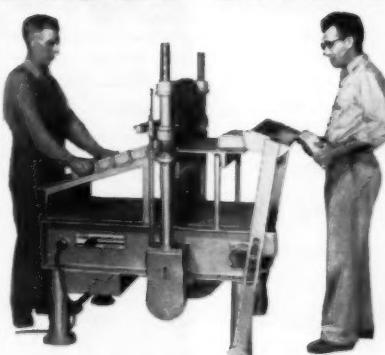
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Zonolite Offers New Technical Data File

A series of specification sheets on systems of lightweight roof construction has been released by Zonolite Co., Chicago vermiculite producers. In addition to specifications, the file gives properties, physical data, and diagrammatic drawings on seven Zonolite systems. Included are precast insulating roof tile, galvanized metal decks, paper-backed lath, structural concrete, and various formboards systems over which Zonolite concrete is applied. Complete files are obtainable from Zonolite Co., 135 S. LaSalle St., Chicago 3, Ill.

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Built with only 8 moving parts — Cuba Cracker's simple construction means less wear, less that can go wrong. Your plant keeps working; you get maximum output of quality split block — at record low cost. Nationally known for peak efficiency, many of the world's largest producers of split block now operate with these AUTOMATIC SPLITTERS. For more details on how FLEMING SPLITTERS can greatly increase your profits, write:

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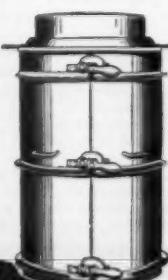


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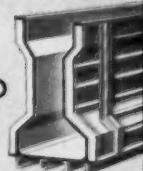
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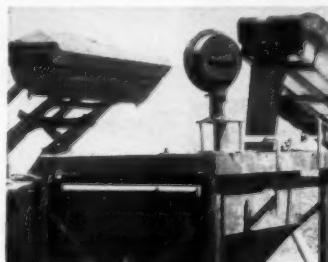
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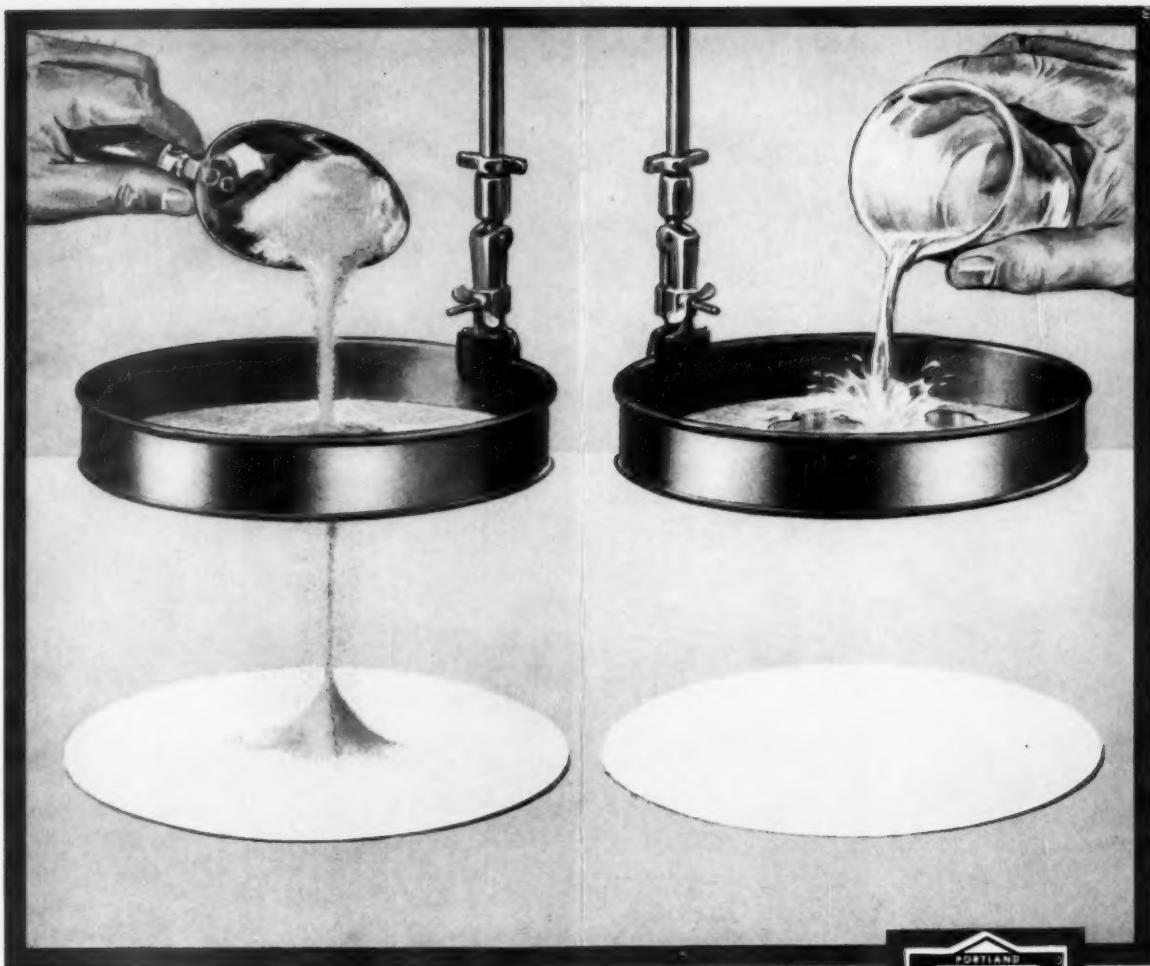
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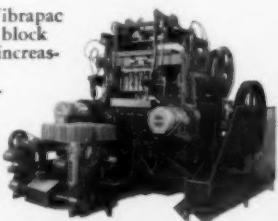
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